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A Study of Water-Based Recreation on the Upper Mississippi River (Pools 7 and 8)

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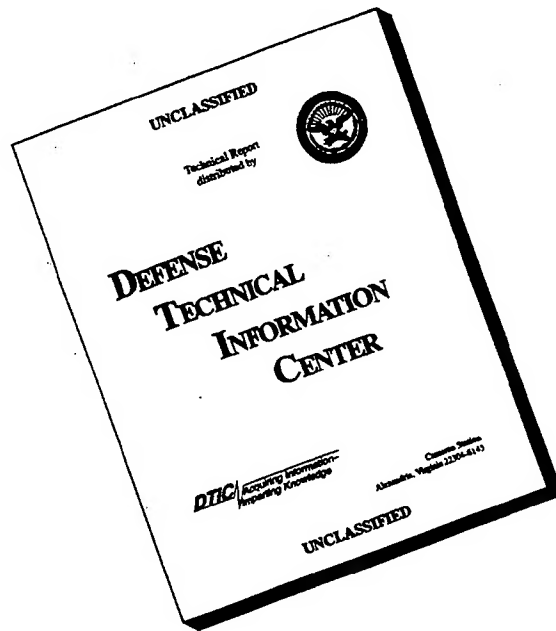
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A Study of Water-Based Recreation on the Upper Mississippi River (Pools 7 and 8)

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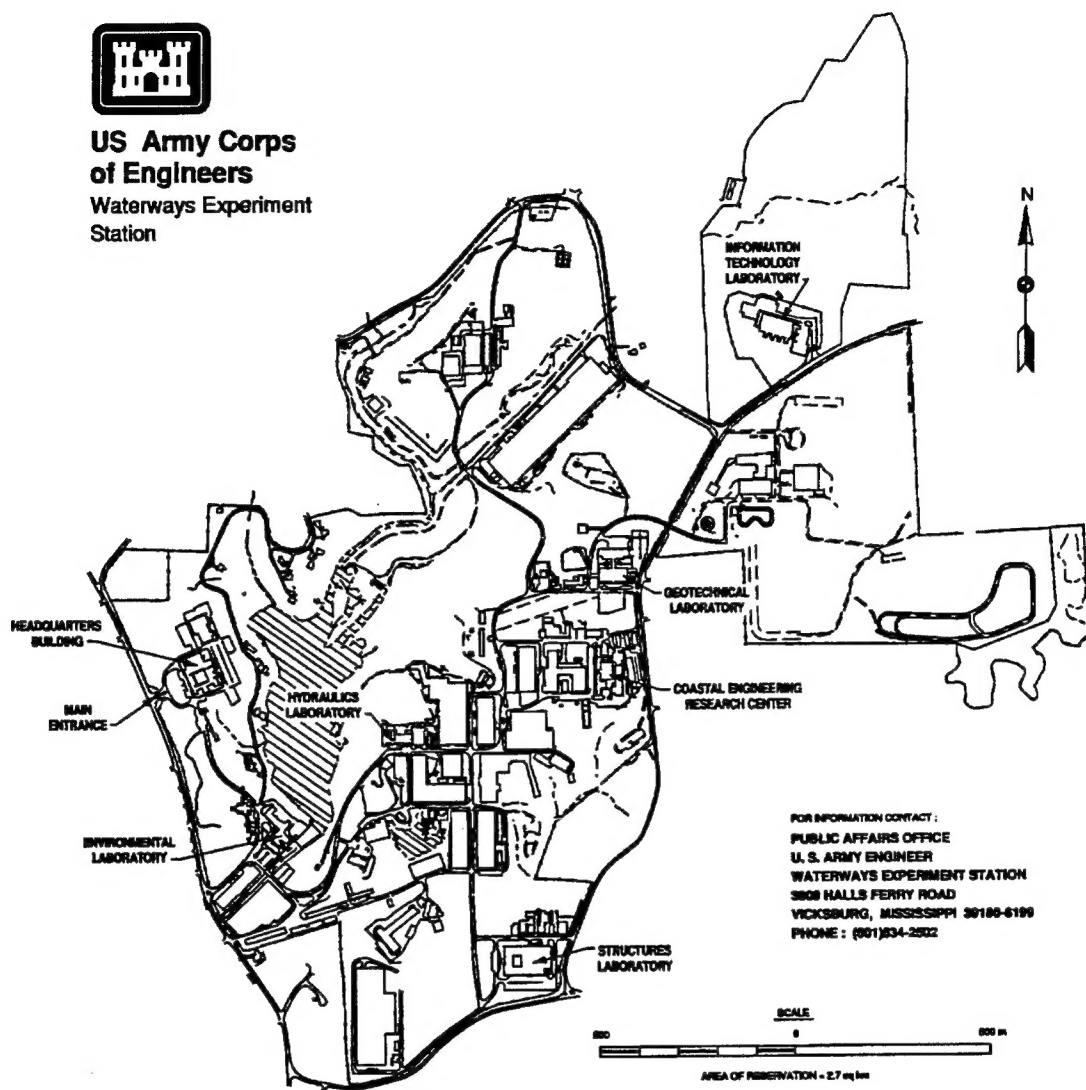
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Preface

The work described in this report was conducted by the U.S. Army Engineer Waterways Experiment Station (WES) during the period August 1993 to November 1994 under an interagency agreement with the U.S. Department of Agriculture Cooperative State Research, Education and Extension Service (CSREES) for the U.S. Army Engineer District, St. Paul. The work and report preparation were conducted by Mr. James J. Vogel, Department of Parks, Recreation and Tourism Management, Clemson University, Clemson, SC, Mr. John P. Titre, Resource Analysis Branch (RAB), Natural Resources Division (NRD), Environmental Laboratory (EL), WES; and Dr. Kenneth C. Chilman, Department of Forestry, Southern Illinois University. Technical review of this report was provided by Ms. Tere DeMoss, RAB, and Dr. David Yozzo, Coastal Ecology Branch, Environmental Resources Division, EL.

The authors acknowledge graduate students Mr. Steven Lethlean, University of Wisconsin - La Crosse; Mr. Tim Orel, Colorado State University; and Ms. Kara Throgmorton, Southern Illinois University, who conducted the majority of the field data collection for this study.

This investigation was performed under the direct supervision of Mr. H. Roger Hamilton, Chief, RAB, and under the general supervision of Dr. Robert M. Engler, Chief, NRD, and Dr. John W. Keeley, Director, EL. Study coordination was provided by Dr. John Meadows, CSREES, and Dr. Robert McLellan, Clemson University.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Bruce K. Howard, EN.

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Conversion Factors, Non-SI to SI Units of Measurement

Non-SI units of measurement used in this report can be converted to SI units as follows:

Multiply	By	To Obtain
degrees (angle)	0.1745329	radians
feet	0.3048	meters
pounds (force) per square foot	47.88026	pascals

Water-based Recreation on the Upper Mississippi River (Pools 7 and 8)

Executive Summary

This report details the findings of a pilot study conducted on Pools 7 and 8 of the Upper Mississippi River during the summer of 1994. The study was designed to determine boaters' perceptions of and preferences for resource, social and managerial conditions on that portion of the river. A secondary objective was to measure and document current levels and patterns of recreational boating on the two pools. The purpose of the pilot study has been to test and adapt as needed management information gathering procedures that could be applied systematically to each of the pools in the Upper Mississippi River system. The information collected provides a baseline for evaluating existing boating conditions and targeting management actions to protect and improve the quality of recreation on the river and to protect the natural resource as recreational use increases and the characteristics of that use change.

A combination of survey procedures were used to obtain visitor perceptions and document boating use patterns. Boating use levels were measured through observations conducted from a plane flying over the study area. Additional counts were conducted at public launching facilities to estimate the contribution of those accesses to overall boat traffic.

Information on boaters, their boating use of the river, and their perceptions were obtained through on-site exit interviews at access areas. Interviews were conducted from late May through mid-August. Boaters accessing the study area from private docks and marinas, as well as those entering through the locks at either end, were contacted through a mail survey. A total sample of 895 Pool 7 and 8 boaters was obtained, with 335 exit interviews completed and 560 mail questionnaires returned through the course of the study.

Selected Findings

Description of Boaters and their Use of Pools 7 and 8

< Most boaters using Pools 7 and 8 are long-time users of the river with the majority having at least a decade of experience. They also tend to be frequent users, with users of public ramps averaging 13 days and marina boaters and dock owners averaging about 40 days on the river in a typical year. The great majority of those visits are single-day visits lasting from two to six hours. Visits are nearly equally divided between weekdays and weekends. Multiple-day visits are usually two days in length.

< The river is mainly a local resource used by nearby residents, with the exception of

those boaters on long distance cruises who pass through the study area. More than half of the boaters using public accesses live in the nearby riverside communities of La Crosse and Onalaska, Wisconsin and 80% live within 25 road miles of the river.

- < There is wide variation between the types of boaters accessing Pools 7 and 8 from public launch ramps, private docks, marinas, and locks. Boaters at the ramps usually bring smaller fishing boats or runabouts, averaging around 16 feet long and 80 hp. Dock owners use similar boats, plus some larger pontoon boats and cabin cruisers. Marinas, which host many houseboats and cabin cruisers, have boats averaging a much larger and more powerful 27 feet and 213 hp. Nearly all the boats coming through the locks are large cabin cruisers of greater than 300 hp.
- < Boaters' activities generally follow boat characteristics. Ramp users and dock owners generally either fish or pleasure cruise, or both. Fishing is a minor activity among marina boaters and lock users who spend most of their time cruising and using the many beaches (dredge disposal sites) along the main channel in the study area.
- < The majority of boaters spend at least some time in the main channel (though 35% of ramp users confined their boating entirely to the Black River and backwaters). However, both ramp users and dock owners spent the majority of their time out of the main channel, while marina boaters spent more than two-thirds and lock users spent nearly all of their time there.

Boater Perceptions of and Preferences for Conditions

- < Most ramp users and dock owners generally seek out good fishing spots and/or locations where they can enjoy some relative solitude and quiet. They usually find those conditions in backwater areas. Others look for good beach sites for sunning, picnicking and swimming. Some marina boaters also seek out quiet and solitude but greater numbers are interested in finding good available beaches and protected side channels.
- < A majority of boaters report avoiding some areas on Pools 7 and 8. They are most often avoiding sections of the main channel, especially close to La Crosse, where they complain about too heavy boat traffic and bothersome wakes associated with that traffic. Boaters using larger boats are also frequently required to avoid side channels and backwaters as they become more shallow due to sedimentation.
- < Ramp users and dock owners place the most value on the convenience of the river, the scenery and wildlife to enjoy, and good fishing opportunities. Proximity to home and scenery are also important to marina boaters, in addition to the availability of good beaches.
- < About half of the ramp users boat other places besides Pools 7 and 8 with the most prominent alternatives being other pools of the river, especially the adjacent pools. They typically choose to come to Pools 7 and 8 because it is closest to home and

offers good fishing. Only one-quarter of dock owners and one-third of marina boaters boat elsewhere, once again most often further up and downriver.

- < Most boaters perceive changes occurring on the river, especially increases in boat traffic and resultant crowding, a decline in the quality of fishing, a decline in the number and condition of beaches, and filling in of backwaters and side channels. They report that these changes are causing fishing and general boating to be less enjoyable on the river, and some are modifying their activities or using the river less as a result.
- < Many boaters have in mind changes they would like to see occur on the river which they believe will improve their visits. The most commonly desired changes include improvements to public accesses, more dredging in backwaters to improve flow and access, additional or improved beaches, and increased patrol and boating law enforcement.
- < Despite complaints about heavy boat traffic and crowding, it was a minority of boaters who reported problems or conflicts with other boaters. Problems reported are generally either instances of unsafe boating (e.g., boats coming too close or going too fast) or discourteous behavior (e.g., boaters causing wakes too near fishermen or littering beaches).
- < Very few boaters said they had any problems with tows. The greatest portion of complaints were related to lock usage conflicts and long lockage waits or concerns about shoreline and river bottom erosion caused by tows' prop wash and wakes. Only a small part of the complaints mentioned safety concerns.
- < Around one-quarter of the dock owners and marina boaters said they had seen or experienced accidents or safety hazards on the river. However, the great majority of the hazards mentioned were instances of unsafe boating (as had been mentioned in response to previous questions about problems with other boaters), or physical hazards that are part of the river boating environment such as submerged wing dams, shoals, and floating debris.

Boaters' Perceptions of Use Levels

- < A majority of the boaters saw "about as many" boats as they expected to encounter during their last visit. However, about 40% of ramp users, 30% of dock owners and marina boaters, and 25% of lock users said they saw fewer boats than they expected to see. These results signify that boaters' perceptions of crowding are *not* primarily a result of a higher number of boats on Pools 7 and 8 than they expected.

- < Though many boaters encountered less boats than they expected on Pools 7 and 8, from one-quarter to nearly half of each boater group still would like to have seen fewer boats. Dock owners and marina boaters appear to be particularly sensitive to higher use levels. Boaters who saw more boats than they would have liked include both fishermen and pleasure boaters. These results indicate that the primary source of boaters' perceptions of crowding is the presence of greater numbers of boats on the area during their visits than they would prefer.

Estimation of Use Levels and Distribution of Boats

- < Six weekend and six weekday overflights were conducted over the entire study area to determine the number and distribution of boats. All but one were conducted in the afternoon. Considerable variability in the amount of recreational boating occurring was observed. Use was much higher on weekends than on weekdays, with counts ranging from 223 to 498 boats on weekends and 60 to 134 boats on weekdays. Low use levels were typically associated with bad weather.
- < Three-quarters to two-thirds of the boat traffic observed on the study area was on Pool 8. From 18 to 29% of the boats on weekends, and 10 to 23% of the boats on weekdays, were beached. As many as fifty boats were counted along the more popular beach sites adjacent to the main channel. Use is sparse in most backwater areas, with the exception of the east side of Lake Onalaska north of French Island, which is popular with fishermen, and to a lesser extent, the backwaters to the north and west of Goose Island.

Primary Conclusions Related to Maintaining Quality Water-Based Recreation on Pools 7 and 8

- < Boaters with 10, 15 or even 20 years of experience on Pools 7 and 8 are common. Many of these boaters were accustomed to different physical and social conditions than what exists on the area today (e.g., backwaters less effected by sedimentation and loss of islands, less pleasure boating traffic). These boaters largely equate quality recreation on the river with these historical conditions and generally desire management actions to maintain and restore those conditions.
- < The boaters on Pools 7 and 8 are primarily residents of the immediate area who use the river often and place high value on the convenience of the river--along with resource amenities such as scenery, wildlife, good beaches, and good fishing. Although other pools, rivers, and lakes are used by many boaters, the proximity of Pools 7 and 8 make those pools their primary choice for most of their boating. These factors signify that changes that diminish the quality of their visits to Pools 7 and 8 have a strong impact on their boating in general.

- < Maintaining the overall quality of water-based recreation opportunities on Pools 7 and 8 would be facilitated by the recognition of a definite division of boater types that exists among the boaters using the pools. The survey data demonstrates such a division based on boaters' primary activities and the conditions they consider best for pursuing those activities. On one side are those primarily interested in fishing; on the other are those primarily interested in cruising, using beaches, and perhaps swimming, waterskiing, and sunbathing. The fishermen want to be able to get to and enjoy primarily backwater and side-channel fishing spots, with a minimum of disturbance from moving pleasure boats en route to or at those favorite fishing locations. Pleasure boaters more often stay to the main channel and deeper side channels and adjacent beaches. They are most concerned with enjoying their cruising and beach use without such a high level of use or resulting conflicts that cruising and other activities are made less enjoyable or available beaches too difficult to find.
- < The spatial data and the survey data indicate that, for the most part, fishermen and pleasure boaters separate themselves fairly well and conflicts between these groups with such disparate needs are not overly common. However, conflicts do arise when members of both groups are in shared areas - for example, when fishermen travel through high-traffic areas en route to their fishing spots, or when they attempt to fish in areas receiving pleasure boating activity.
- < Additional conflicts appear to arise out boater carelessness and lack of boater courtesy in high traffic areas, particularly between larger and smaller pleasure craft. What they perceive to be reckless or rude operation of personal watercraft are an especially significant annoyance to some boaters. Numerous boaters called for additional boat patrol and boater education to, they hope, reduce the incidence of these conflicts and the threat they represent to the quality of recreation on Pools 7 and 8.
- < Boater conflicts are likely exacerbated by the changes in social conditions most widely reported by Pool 7 and 8 boaters; increased boat traffic, the presence of more large boats, and more often feeling crowded on the river. Any efforts to maintain quality must recognize and address the effects of these trends.
- < The widely recognized sedimentation and filling in of backwaters (and the related changes in conditions such as aquatic vegetation, the fishery, and water quality) is the change to the physical resource of most concern to fishermen and some pleasure boaters. Beach users are most concerned about the loss of access to beach sites due to erosion and an increase in dirty and littered beaches. Requests were frequent, especially among boaters whose quality of opportunities depends on good fishing conditions or good beaches for additional efforts to prevent additional deterioration or to repair the degradation that has already occurred.

- < The boaters who observed these changes in social and physical resource conditions on Pools 7 and 8 usually reported some negative effects on their boating as a result. These effects represent the specific ways the quality of boaters' visits are being diminished. The effects most often include a simple loss of enjoyment in fishing and pleasure boating on the area, but some reported they are using the river less or finding it necessary to abandon some river activities.
- < Boaters generally did not regard commercial traffic (tows) or physical hazards common to the river boating environment as significant threats to their safety or enjoyment. The exceptions would be those who were disturbed by long waits at the locks to lock through and those who felt particularly hazardous wingdams should be marked.

1 Introduction

The Challenge: Balancing Recreation and Other Resource Uses on the Upper Mississippi River

The Recreation Work Group (RWG) of the River Resources Forum¹ has been charged with preparing "...a Comprehensive Recreation Management Plan that will seek to balance water and land surface recreational uses with other designated or recognized uses, including commercial navigation and biological resources..." The RWG has requested assistance from the U.S. Army Corps of Engineers Waterways Experiment Station (WES) in preparing this plan through the application of a management information process recently developed at Corps lakes. This report discusses the pilot application of this process on Pools 7 and 8 of the Upper Mississippi River (UMR).

The Comprehensive Recreation Management Plan - Plan of Study

A Comprehensive Recreation Management Plan (CRMP) Plan of Study (POS) has been prepared by an Ad-Hoc Task Force created by the RWG (1992). The POS, completed in May 1992, specifies recreation management issues of concern as identified through previous studies and through public comment, and sets forth a planning effort scheduled to occur over a 4 1/2 year period. The POS also specifies the goals and objectives of the CRMP and proposes a multi-phase study schedule to meet those objectives. The overall task to be accomplished during Phase One is "documentation of existing conditions" to be followed in Phase Two by "description of desired conditions" (however, the schedule indicates substantial overlap in these phases). These tasks have been the focus of the management information process applied on Pools 7 and 8 throughout its development.

Emerging from these tasks is one of several priority research needs listed in the POS (p. 33): "Conduct survey research on recreational users to (obtain) information related to attitudes, origination, destination, satisfaction, conflicts, crowding, displacement, etc." This study has addressed several of these information needs as well as several more narrowly defined issues enumerated in the POS.

¹ The River Resources Forum, formerly called the Channel Maintenance Forum, is a federal and state agency partnership organized to provide management guidance on the navigable portions of the St. Croix, Minnesota, and Black Rivers and the Mississippi River to Lock and Dam 10. Representatives from the U.S. Army Corps of Engineers, St. Paul District, U.S. Fish and Wildlife Service; U.S. Coast Guard; U.S. Soil Conservation Service; U.S. Environmental Protection Agency; National Park Service; and the states of Minnesota, Iowa, and Wisconsin are members of the Forum.

The Recreation Work Group is comprised of recreation resource management professionals from within the River Resources Forum and provides technical advice and expertise in river recreation issues. Participating members and agencies of the Recreation Work Group are listed in Appendix G.

The Need for User and Use Data

As illustrated in the POS, the RWG has recognized the necessity of current information on the users of the river and their patterns of use. As managers of outdoor recreation resources, they are charged with the complex task of providing safe and enjoyable recreation opportunities while protecting the land and water base. At the same time, they must address other important resource values such as wildlife habitat, ecological integrity, and in the case of our major waterways, commercial navigation. To balance the provision of quality outdoor recreation opportunities within this context of achieving multiple resource objectives, resource managers need accurate and timely information on the amount and type of recreational activity occurring. In addition, information is needed on existing and potential conflicts, and relationships to other resource uses.

This implies knowing who is recreating on the resource, the amount and characteristics of recreation activity, the qualities of the resource that attract recreational visitors, and the visitors' perceptions of the current state of those qualities, as well as other conditions that are important to their recreation experience. Managers need information about existing or potential conflicts between recreational and other resource uses to target management actions aimed at reducing or eliminating conflicts.

User groups who live near and recreate at these places are asking more questions about management actions and policies than ever before; managers can no longer defend their decisions based upon their perceptions of the problems and opportunities. Instead, they need systematic information gathered over time to answer questions, support decisions and to cope with changes in resource use patterns.

Numerous plans and studies have been completed on all or portions of the Upper Mississippi River over the last 15 years yet little systematically gathered information is available about the recreational use of the UMR. Many unanswered questions exist about the patterns of use and changes in use, demand for specific types of recreation experiences, and a myriad of perceived threats to the quality of recreation on the river related to congestion, conflicts, displacement, overuse and crowding.

The Need for a Data Base to Address Problems and Change

Management of multiple-use resources frequently requires resolution of problems related to meeting the needs of competing resource users or resource values. Different recreational activities or behaviors occurring on the same area may conflict thereby reducing the enjoyment of visitors on both sides. For example, a survey of 54,000 registered boaters in Wisconsin conducted in 1989-90 established the Mississippi River as the top boating resource in the state in terms of boater days but also reported perceptions of crowding and diminished quality of recreational experiences by user of the Mississippi. In addition, the CRMP Plan of Study listed displacement of users due to conditions they find unacceptable as an issue of concern.

Recreational activity also may have harmful impacts on the natural resource or the ability of the resource to support certain flora and fauna. Damage caused by wakes to shorelines, beaches and aquatic vegetation beds has received much attention in recent years. However, little attention has been devoted to describing the recreational uses that may be causing these impacts. For example, descriptive information on the size and design of boats in relation to wake damage is poorly documented. Furthermore, users' motives for frequenting backwaters is poorly understood. Modifying behavior through information, education, and interpretation may reduce the negative effects of boating use in sensitive areas. However, this cannot occur without a database on boating use and behavior. Actions to resolve the location and severity of these impacts should be facilitated as the types, amount, and spatial orientation of boater activity patterns are documented.

System-Wide Effects and Commercial Navigation

Most problems related to conflicts or resource degradation are localized or site specific. Other management issues, such as conflicts between commercial navigation and recreational boating can be characterized as system-wide in scope. The quality and safety of recreational activity may be threatened by commercial navigation, and conversely, commercial navigation may be impeded by recreation use. Recreational boat lockage congestion has been reported to be increasing and related safety concerns are being raised. Managers at all government levels need information to identify and delineate the extent of these and other problems, to plan responses, and to document both site-specific and system-wide effects.

Base maps of the UMR containing information on land use, water depth, commercial navigation channels, management jurisdiction, recreation sites, and boater accesses, and many other types of data have been digitally created through the use of Geographic Information System (GIS) technology. These maps can support additional social data base attributes related to recreation for Pools 7 & 8 as measured in this study. These social attributes include locations with specific natural and social conditions desired by boaters, use patterns associated with particular activities or type of watercraft, and locations of conflicts or congestion. Figure 1 illustrates the need to conduct social measurements in conjunction with biological measurements using the same GIS database. Management effectiveness and cost savings will be achieved as indicators are monitored and evaluated for the purposes of decision-making. Furthermore, the procedures established for Pools 7 and 8 can be extended to other pools and locations at lower costs.

Need for Low-Cost Procedure to Gather Information

Although the need for recreational boating use and behavior data is essential, most resource managers are ill-equipped to obtain the data. In most cases they are constrained by both limited training in how to gather recreation use data and limited budgets to pay for data collection and analysis. As resource professionals become increasingly aware of the need for this type management information, they have intensified their search for low-cost procedures to use to gather the information.

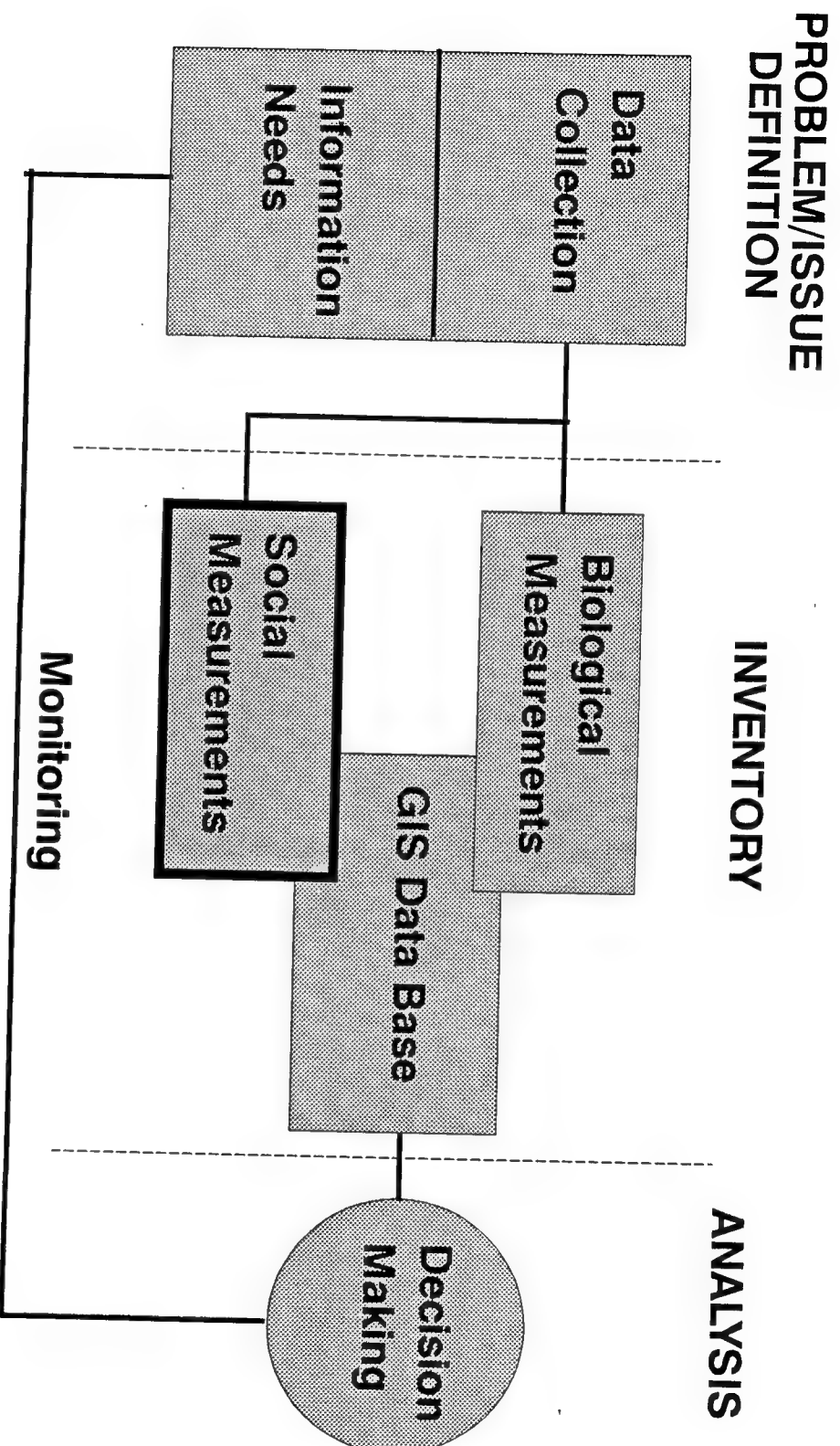


Figure 1. The relation of social and biological measurements within a shared GIS data base

The management information process adopted in this study utilizes low-cost procedures through simple and straightforward sampling, survey design, and analysis tasks. This allows managers and researchers to spend more time discussing the findings, which has been an overlooked task.

Objectives of Study

The *primary objective* of this study is to develop, test, and apply a low-cost management information gathering procedure on a selected portion of the UMR that can be applied to the remaining portions of the system in succeeding years.

The baseline data obtained with the above procedures function to meet the following *secondary objectives*:

- 1) Describe the boaters using Pools 7 and 8 and their boating activity.
- 2) Document boaters' perceptions of and preferences for resource, social and managerial conditions on Pools 7 and 8.
- 3) Measure and document current levels and spatial use patterns of recreational boating traffic on Pools 7 and 8, including the use of backwater areas.

CRMP Objectives to be Met

Concurrent with meeting the relatively broad data collection objectives listed above, this study can also potentially meet or contribute to the meeting of four of the eight objectives (nos. 2 through 5) stated for the CRMP in the Plan of Study (p. 21) through the provision of the outputs listed below:

CRMP Objective #2

- *Identify the needs for modifying, or the opportunities for enhancing recreational activities.*

Applicable Outputs of Study:

- Data on the amount of specific recreation activities occurring within the study area
- Data on the desired/favored natural and social conditions as related to specific activities
- Data on the present state and recent changes in natural and social conditions
- Data on conditions that are most detrimental to specific recreational activities
- Data on boater' satisfaction with access, facilities, etc. related to specific activities

CRMP Objective #3

- *Identify conflicts between river users and locate problem areas.*

Applicable Outputs of Study:

- Data on the nature and frequency of conflicts occurring within the study area
- Data on the location of specific types of conflicts between recreational boaters
- Data on areas where boaters encounter crowding or congestion

CRMP Objective #4

- *Identify environmental impacts attributable to recreational activities.*

Applicable Outputs of Study:

- Data on the location of specific types or concentrations of boater activity in places where environmental impacts might be expected to occur.

CRMP Objective #5

- *Identify and recommend strategies to improve recreational opportunities and to minimize or eliminate user conflicts and negative environmental impacts.*

Applicable Outputs of Study:

(Some overlap with outputs associated with CRMP objectives #2 and #3)

- Data on use patterns as well as desired conditions, changes, and problems occurring as identified by boaters using the study area.

Study Area

Pools 7 and 8 encompass approximately 40 miles of the Mississippi River between Lock and Dam 6 at Trempealeau, Wisconsin and Lock and Dam 8 at Genoa, Wisconsin (Figure 2). The pools display a habitat gradient typical of that created by the installation of the dams. The areas immediately downstream of the dams are characterized by turbulent tailwaters and a confined main channel. This is followed by areas with more extensive side channels and backwaters. The pools finally take on a more wide-open "lake" appearance with backwaters up to several miles in width upstream of the next dam. River-side communities on the Wisconsin side of the study area include La Crosse (pop. 52,000) and adjacent Onalaska (pop. 14,000), and Stoddard (pop. 3,000). River-side communities on the less populous Minnesota side of the study area include La Crescent (pop. 4,300) and Brownsville (pop. 400).

Pools 7 and 8 were chosen as the study site based on a series of meetings and discussion with the RWG. These pools were selected as a priority for the study because they have been identified as supporting much of the recreational activities that occur throughout

Upper Mississippi River Pool 7 and 8 Study Area

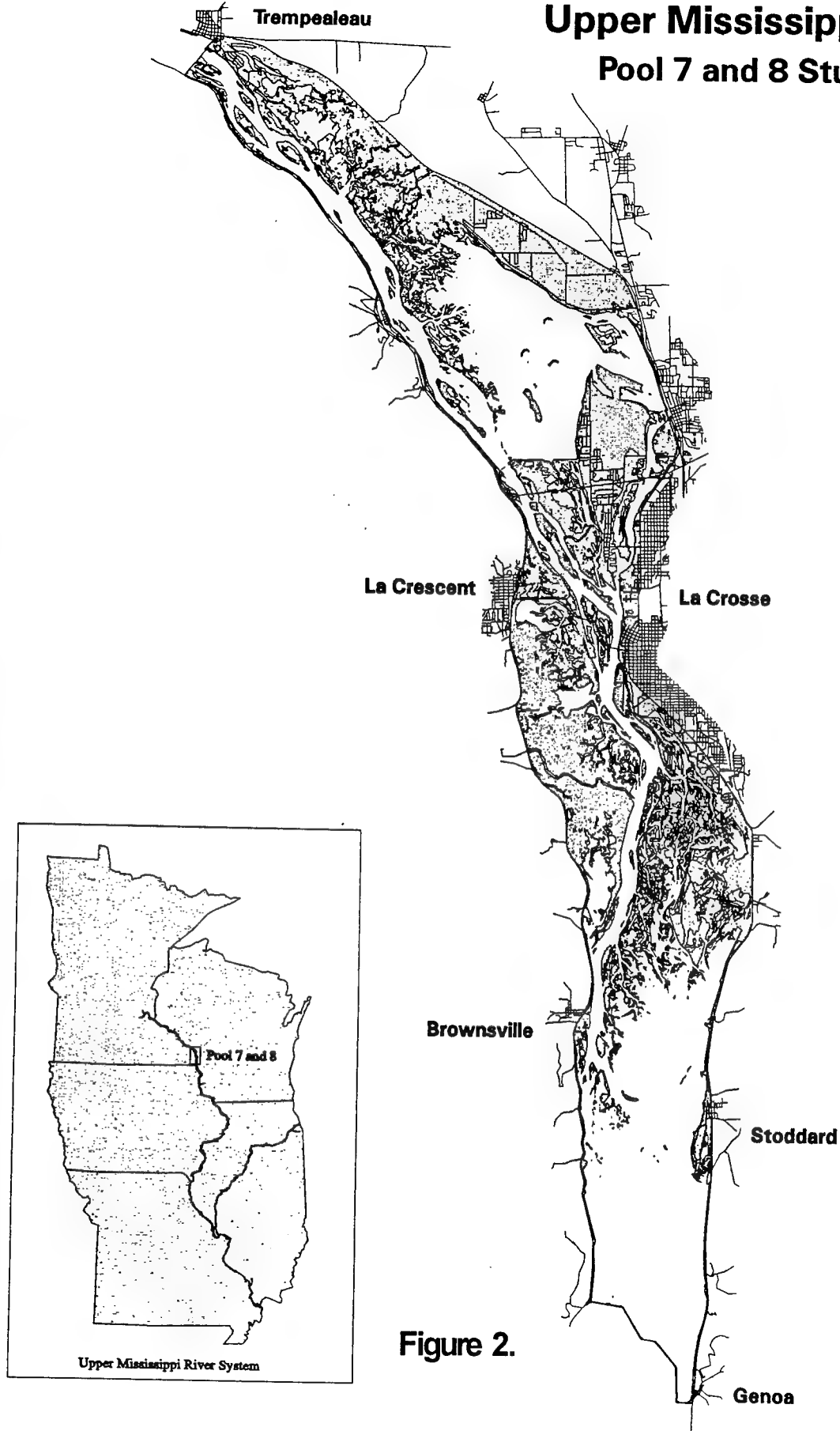


Figure 2.

the UMR and are characterized by resource conditions typical of many portions of the UMR. The intent has been to develop procedures on these pools that will be suitable for application to other pools and river sections as additional funding becomes available.

Another advantage offered by this study location is proximity to Corps of Engineers, Wisconsin Department of Natural Resources, and U.S. Fish and Wildlife Service offices, including the Environmental Management Technical Center (EMTC), and the University of Wisconsin - La Crosse campus.

Study Design

Resource managers need an established procedure to use in gathering data on the amount and characteristics of boating use, as well as on the perceptions and preferences of boaters for the conditions they encounter during their boating. Managers have been adamant that they must be able to implement these procedures within existing limits of manpower and budgets. To meet this need, carrying capacity studies aimed at testing manager-oriented, low-cost data collection, reporting and analysis procedures have been undergoing development and testing at several small (less than 3000 surface acres) and large (20,000 or more surface acres) Corps lakes since 1991 (Titre and Vogel, 1993). A set of procedures has been progressively refined and perfected, but it was expected that some adjustments would be necessary in transferring these methods to the UMR.

Recreational Carrying Capacity

Recreational carrying capacity is synonymous with a need for more intensive management. As visits to recreational areas have increased or as types of uses have changed, the nature of the visit experiences (and sometimes the nature of the areas) have changed. Managers encounter increasing complaints and conflicts, and seek strategies to deal with them.

Carrying capacity is a concept borrowed from other resource management specializations, i.e., range management and wildlife management. The concept implies that specific land areas have certain "capacities" for use, and that these capacities can be determined and managed. However, the concept has various meanings and complexities in its native application to wildlife management (Dasmann 1981), and is even more complex in recreation resources management. Recreation specialists had hoped for a simple formula to calculate capacities of recreation visits, but it became evident that too many variables were involved.

In 1982, Washburne proposed conceptualizing recreational carrying capacity *as a set of conditions* (physical-biological, social, and managerial) to be managed on a particular area, rather than as a calculation of limits on visitor numbers. During the past few years, various processes - Limits of Acceptable Change (LAC), Visitor Impact Management (VIM),

Carrying Capacity Assessment Process (C-CAP), and Quality Upgrading and Learning (QUAL) - have been developed to gather and integrate various kinds of information for an area, and to make recommendations for the desired set of conditions.

Inventory of the Resource and its Use

The approach to information collection and analysis that is being followed in this and preceding carrying capacity studies at Corps lakes stresses detailed inventory of the resource and its use. This study sought to apply for the first time updated inventory procedures on a "navigation project" rather than at a Corps lake.

Data collection for this study included exit interviews with boaters using public launch ramps, mail surveys of boaters using private or marina docks and boaters entering the study area through the locks at the upstream and downstream ends, and combined observations and counts of boats on the water. The exit interviews and mail surveys focused on gathering information on use patterns, and on the perceptions and preferences of boaters using Pools 7 and 8. Boat observation and counts were done to gather additional information on spatial use patterns and to measure the level and character of boating activity. Detailed explanation of the study methods are provided in Appendix A.

While frameworks with necessary steps have been established in response to Washburne, this study sought to apply aspects of the QUAL process (Chilman et. al. 1989) since it most directly incorporates a low-cost managerial approach with emphasis on inventory and discussion of results tasks. This leads toward specifying desired conditions as a consequence of data collection in contrast to other procedures that attempt to set management objectives prior to the consideration of how people use the resource. Testing and refinement of other aspects of QUAL, e.g., monitoring, are underway.

2 Results of Boater Survey

The results of the boater survey will be presented in several parts. First, the descriptive or "boater group profile" data will be reviewed (p. 11-24). This is largely numeric data that tell "who the boaters are" in each survey group and that allow some comparison between groups. The ability to compare between groups is useful to answer question such as "Are the boaters coming from docks and marinas different from boaters launching from ramps in ways that might affect how they perceive conditions on the river or how they might be affected by certain changes occurring?" The answers to such questions are fundamental to understanding the perceptions and needs of boaters as expressed in the survey responses. This knowledge is also an important element in planning effective management responses to problems and in planning for different user groups' needs.

Discussion of the descriptive data will be followed by a summary and comparison of responses to the open-ended questions that reveal boaters' perceptions of current conditions and preferences for future conditions (p. 25-45). This includes information on boaters' perceptions of safety hazards and conflicts occurring. The final survey results section details boaters' perceptions regarding the amount of boat traffic on the river (p. 46-48).

Boater Group Profiles

One purpose of the boater survey is to meet the basic management information need for descriptive data about the boaters using Pools 7 and 8 and their general pattern of use of the river. The boater survey describes boaters through six types of descriptive information;

- 1) extent of experience on the river,
- 2) frequency of visits to the river,
- 3) length of visits to the river,
- 4) residence and distance travelled to the river,
- 5) type, size and horsepower of boat used, and
- 6) activities participated in on the river.

For this study, RWG members also desired information on the percentage of boaters using the main channel, backwaters, and the Black River and the proportion of their time on the river spent in these areas.

Each of these pieces of information help describe and differentiate the various boater populations that have access to the river. However, descriptive information alone is not sufficient to make defensible management decisions. This information becomes most useful when it is linked to boaters' responses about their perceptions of and preferences for conditions given in the remainder of the survey. The boater profile data is used to connect boaters' statements about conditions to specific types or groups of boaters. In other words,

knowing such things as the amount of boaters' experience on Pools 7 and 8, how much they use the river, the types of watercraft they use, and the water-based activities they participate in lends meaning to, supports, and explains boaters' perceptions and preferences. Both types of information are necessary to reach an understanding of what boaters are looking for on Pools 7 and 8 and how recreation opportunities may be improved. (Frequency tables and descriptive statistics for the boater group profile data are provided in Appendix H.)

Extent of Boaters' Experience on Pools 7 and 8

The length of experience boaters have on the river is a factor in how much knowledge they have of the river and determines the time frame in which they have had the opportunity to observe changes occurring. Also, long-time visitors are more likely to have a sense of "ownership" of the river or "place attachment" and tend to have a greater sensitivity to and concern about changes in the conditions they have become accustomed to than visitors who have been using the area fewer years.

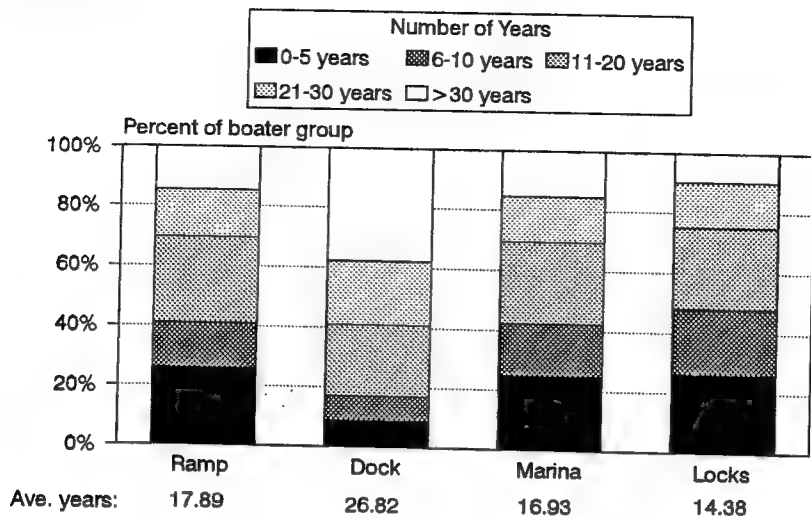
On the whole, the boaters using Pools 7 and 8 have quite lengthy experience with that portion of the river (Figure 3). A majority of all four boater groups have been coming to the river more than five years, though several groups included a substantial number of relative newcomers (i.e., those with five or fewer years of experience on the river). The dock and boat house owners (labeled "Dock" in the figures) within the study area have, by a wide margin, the greatest experience on the river with nearly 60% of those boaters having been boating on the river more than 20 years and the average boater in that group having nearly 27 years of experience.

Frequency of Use of Pools 7 and 8

Like long-time visitors, boaters who are frequent users of the river can be expected to have more knowledge of current conditions than boaters who visit less frequently. Frequent visits also result in more opportunities to notice and a greater probability of being affected by changes that are detrimental to the experiences those boaters are seeking on the river. It can be surmised that the river is the primary location at which frequent visitors participate in water-based outdoor recreation. (Data on boaters' use of other river and lakes, discussed on p. 34-35, documented that more frequent users of Pools 7 and 8 are less likely to boat other places.)

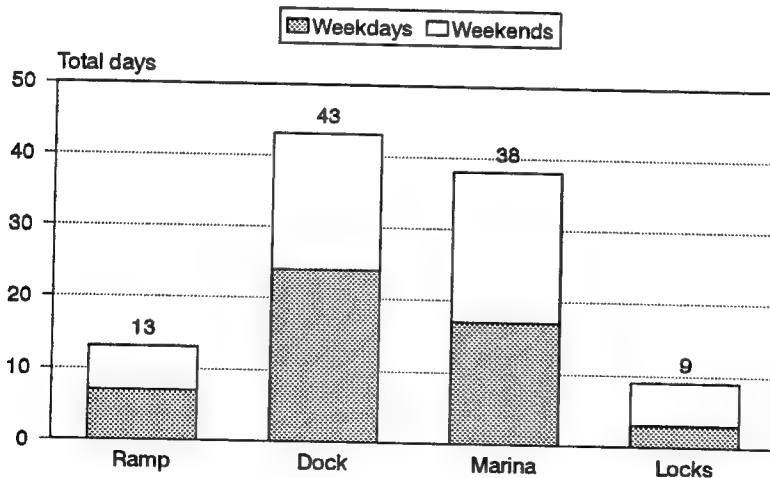
Pool 7 and 8 dock owners and marina boaters (labeled "Marina" in the figures) tend to boat on the river frequently; they reported an average of about 40 or so days of boating on the study area each year (Figure 4). However, ramp users (labeled "Ramp" in the figures) and those accessing the study area through L/D 6 and 8 (labeled "Locks" in the figures and hereafter referred to as "lock users") tend to be less regular visitors, averaging about 13 and

Figure 3. Extent of boaters' experience on Pool 7 and 8.



Note: Lock users were asked the number of years they have been boating on the Mississippi River, rather than on Pools 7 or 8.

Figure 4. Average number of days boaters visit Pools 7 and 8 (typical year)



Note: Ramp User data has been adjusted to remove frequent-visitor bias inherent in sample.

nine days, respectively, on the two pools per year.¹ Boaters' visits tended to be fairly equally divided between weekdays and weekend days, although dock owners and ramp users make somewhat more visits on weekdays, while the other boater groups tend more towards weekend visits.²

For the sake of comparison, boaters can be divided into "occasional" visitors (1-10 days per year), "regular" visitors (11-30 days per year), "frequent" visitors (31-50 days per year), and "very frequent" visitors (more than 50 days per year). Following this categorization, most ramp users and lock users (67 and 79%, respectively) are only "occasional" visitors (Figure 5). In contrast, the greatest number of dock owners and marina boaters (42% of each group) are "regular" visitors and even more are "frequent" or "very frequent" visitors.

Length of Visits to the Mississippi River and Pools 7 and 8

Knowing the amount of time boaters spend on the river is a basic component of a description of their use. It may also be an indication of the importance of boating to their visit when the visit has multiple purposes or includes non-river based activities. The length of visits is related to the frequency of visits and the distance boater's live from the river. For example, some marina boaters are not local residents, so they may visit less often, but the data indicates that their visits may be several days long. Ramp users may be day users or they may visit over several days if they camp on a beach or stay at a developed campground or other area lodging.

On Pools 7 and 8, the great majority of boaters are day users (Table 1). The exception is lock users, nearly 60% of whom were on Pools 7 and 8 more than one day.³ The preliminary lock survey data (see Chapter 5) indicated that many lock users engaged in lengthy cruises of the river traversing several pools. Some of these boaters, while passing through Pools 7 and 8, stop for one or more nights on dredge disposal sites or other beaches. Among boaters staying on Pools 7 and 8 more than one day, most were visiting for two days, although 13% of the lock users reported they that stayed on Pools 7 and 8 four or more days.

¹ The ramp user data on frequency of use has been adjusted to remove the frequent-visitor bias inherent in the sample. This is necessary because access point surveys have a much greater chance of including frequent users than infrequent users.

² Although visits are nearly equally divided between weekdays and weekends, overall use levels are much higher on weekends (as the count data reviewed later will confirm) because the weekday visits are distributed over many more available days than are the similar number of weekend visits.

³ Ramp users were asked what time they got on the water the day of the interview while dock owners and marina boaters were asked to report when they had departed and returned to their dock or marina slip during their last boat outing. In both cases, the number of hours refers to time spent *on the river*—not just on Pools 7 and 8—during their last visit, though most stayed within the two study pools. In contrast, lock users were specifically asked to report the number of days they spent *on Pools 7 and 8* during their last visit.

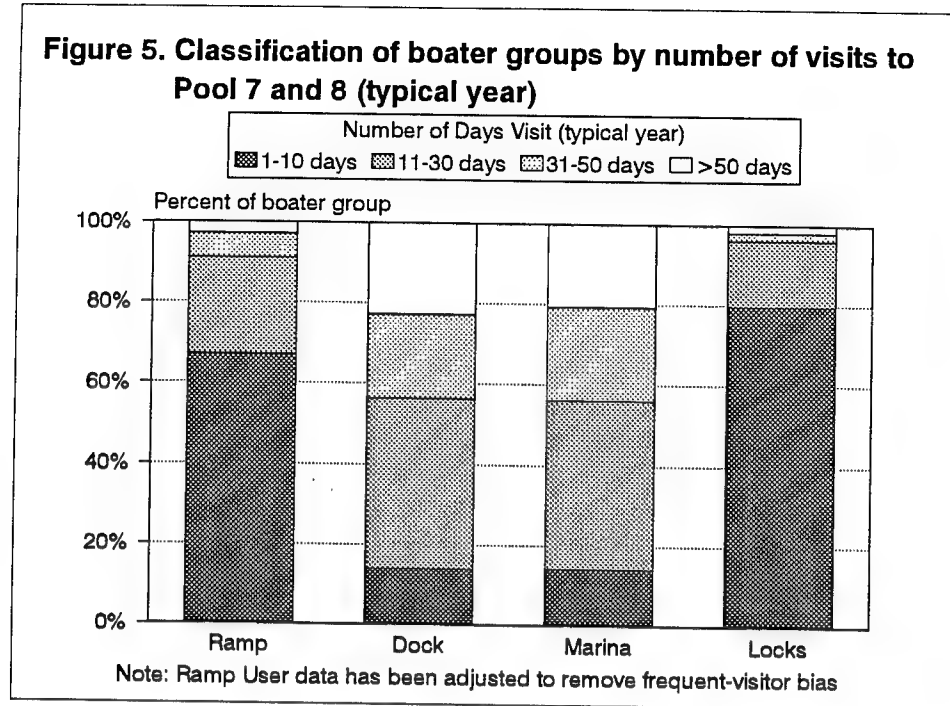


TABLE 1. LENGTH OF BOATERS' VISITS TO MISSISSIPPI RIVER (DAYS)

	Ramp Users	Dock Owners	Marina Boaters	Lock Users ^a
One day visit	85%	94%	80%	41%
> One day visit	15%	2%	17%	58%
2 days	6%	1%	13%	37%
3 days	5%	1%	2%	9%
4+ days	4%	-	2%	13%
No data	-	5%	3%	1%

a. Lock users' length of visit includes days on Pools 7 and 8 only.

Boaters typically spent about five hours on the river during their most recent visit and about 60% spent between two and six hours (Figure 6). Marina boaters differed from the other boaters in that over 20% of the respondents spent ten or more hours on the river during their last visit before receiving the questionnaire. Many of those individuals were on two day or longer trips and a portion of the time between their reported departure and return to their slips were overnight hours spent at dredge disposal sites or other beaches. In actuality, a similar proportion of ramp users may also have been on the river more than ten hours since nearly as high a percentage as among the marina boaters were on multiple-day trips. However, because ramp users were asked what time they had gotten on the river *the day of the interview*, this would *not* include the overnight hours spent on beaches.

Lock users were not asked to report the number of hours they spent on Pools 7 and 8 since, as mentioned above, many were thought to be long-distance river cruisers who were only passing through the area. It would be difficult for boaters who had completed a long trip through several pools to accurately report the number of hours spent on particular pools. However, to better describe lock users' use of Pools 7 and 8, they were asked whether Pool 7 and/or 8 was their primary destination or if they were passing through the pools while travelling to or returning from another destination further up or downriver. Seventy-one percent said they were passing through while only 29% said Pools 7 and/or 8 was their primary destination.

Distance Travelled to the River and State of Residence

We would expect the distance boaters live from a ramp, their dock, boathouse, or marina slip to affect how much they use the river. A check of the survey data confirms this; ramp users and marina boaters who live more than 25 miles away reported 61% and 18%, respectively, fewer annual visits to the river than those living within 10 miles.

Ramp users were asked the location of their residence and how far their residence was from the ramp where the interview took place. Eighty-seven percent of the ramp users interviewed were Wisconsin residents (recall that a majority of the ramps--and the three most heavily-used ramps--are in Wisconsin). Nine percent lived in Minnesota, 2% in Iowa, and the remaining 2% in other states. More than half (54%) live in La Crosse, Campbell (French Island), or Onalaska, Wisconsin. Although they travelled an average of about 32 miles to the river, almost two-thirds live within ten miles and nearly 80% live within 25 miles (Figure 7). Only 10% travelled more than 100 miles. Marina boaters are also primarily local residents. Although they live an average of about 22 miles from their marina slip, nearly 70% live within ten miles and 83% live within 25 miles. Only 8% travel more than 100 miles.

Although dock and boathouse owners were not asked how far they live from their dock or boathouse, it was observed during the study that most of those structures were adjacent to (i.e., in the "back yard" of) riverside residences. Some boat houses (e.g., those belonging to the West Side Boat Club on the Black River and those in the Lawrence Lake area) do not adjoin residential property and their owners may not live on the river.

Figure 6. Hours spent on the river during last visit

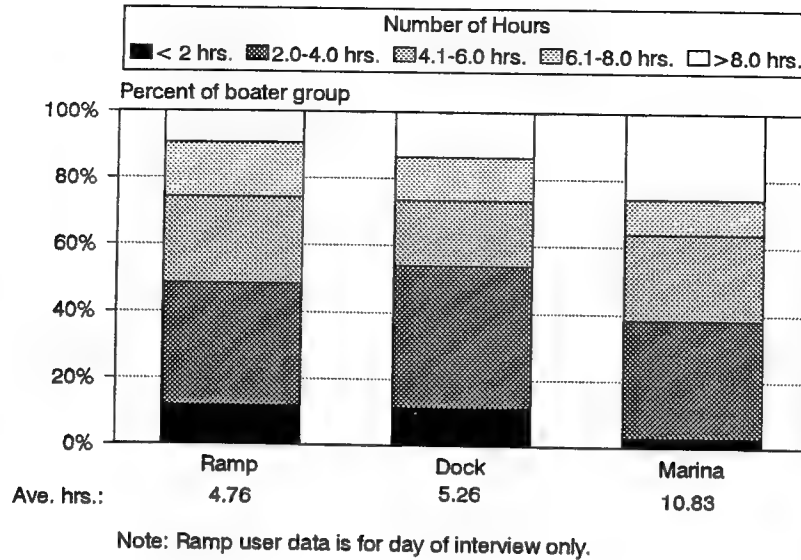
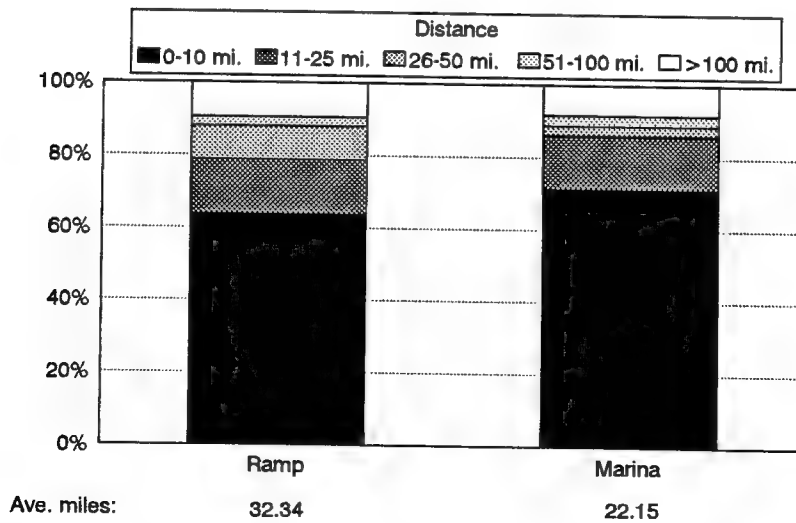


Figure 7. Distance boaters live from Pool 7 or 8 access point



A review of the slip renter mailing addresses provided by the marinas revealed that about 82% are Wisconsin residents with two-thirds living in the two largest communities adjoining the study area, La Crosse and Onalaska. About 15% are Minnesota residents, about one-half of whom live in La Crescent, Minnesota (directly across the river from La Crosse, Wisconsin).

Type, Size and Horsepower of Boats Used

Knowing the types of boats being used gives some indication of the type of boating activity going on. Boaters using runabouts, pontoon boats, and fishing boats can be expected to use the river in different ways since these boats are built for different purposes and may not be operated in the same way. Tracking changes in the types, size and power of boats being used may allow managers to predict changes in use patterns and increases in conflicts among boater types.

Fishing boats were the most numerous type of boat originating at the ramps and at private docks, comprising 58% and 46% of boats, respectively (Figure 8). Runabouts/Ski boats made up most of the remainder for those two groups, although pontoon boats comprising about 15% of the dock owners' boats.

In contrast, runabouts/ski boats were the most commonly used type of boat at marinas. Houseboats and cabin cruisers were also numerous, together comprising about one-half of marina boats. Cabin cruisers accounted for more than one-half (54%) of the lock users' boats, with most of the remainder being runabouts/ski boats.

As would be expected, given this information on boat types used, the smallest and least powerful boats, on average, were found at the ramps (16.2 feet and 78.5 hp) and docks (18.7 feet and 78.9 hp). Most boats launched at the ramps were in the 16 to 20 foot size class, with nearly all others measuring less than 16 feet. About one-half of those boats were 50 hp or less and another 20% were between 51 and 100 hp. About one-half of the dock owners' boats were also in the 16 to 20 foot class, with the remainder about evenly divided between the less than 16 foot and greater than 20 foot class. Motor sizes were similar to that recorded on ramp users' boats with the exception that there were fewer boats between 51 and 150 hp and more boats greater than 150 hp.

The average length and horsepower of marina boats was considerably higher at 27.2 feet and 213.0 hp. Sixty-two percent of the boats were longer than 20 feet and 33% were between 16 and 20 feet in length. Only 14% of these boats were reported to have less than 100 hp while 42% had more than 200 hp.

Lock users' boats were, on the average, somewhat smaller than marina boats at 25.4 feet (recall that houseboats, which average nearly 43 feet in length, were numerous at the marinas) but were the most powerful boats on the river, averaging 320.5 HP (Figure 9). Most (67%) of these boats had greater than 200 hp and nearly all had at least 100 hp.

Figure 8. Boat types used on Pools 7 and 8

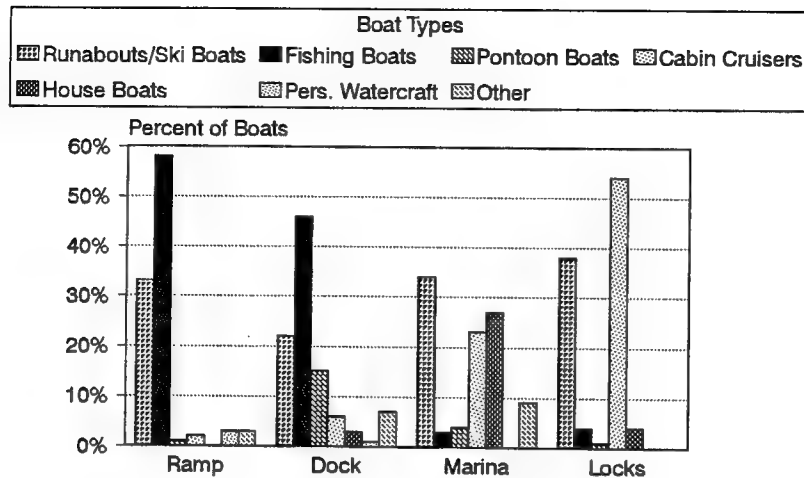
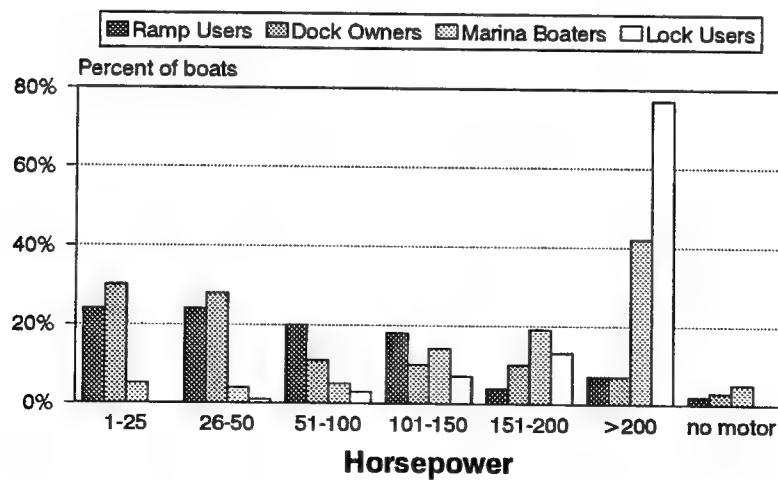


Figure 9. Horsepower of boats used on Pools 7 and 8



Activities Participated in While Boating

The activities boaters participate in tells much about the conditions boaters are likely to desire. Boaters primarily interested in fishing are likely to want very different physical and social conditions from boaters primarily interested in water skiing, or beach use, and so on. Ramp users were asked to estimate the percentage of their time on the river they spent on various activities during the just-concluded visit and point out where they participated in those activities on a map of the study area. (The map data was digitized and maps were produced, using Arc-Info GIS software, of the combined responses for each activity. The activity maps are found in Appendix J.) Mail survey respondents were asked to supply the same activity information in regards to their last boat outing on Pools 7 and/or 8 but were not asked to mark activity locations on a map.

As would be expected, considering the predominance of fishing boats at the ramps, fishing was the activity participated in by the greatest number of ramp users with 56% participation (Figure 10). Nearly one-half said they spent time cruising and about one-third said they spent time on beaches. Only 12% water-skied.

Fishing boats were somewhat fewer in number at private docks and so it follows that fewer (49%) dock owners spent time fishing during their last outing. Cruising was instead the most frequently participated-in activity with 62% participating. About 21% spent time on beaches and 13% water-skied.

Marina boaters' primary activities differed substantially from the previous groups. Nearly all (87%) reported spending time cruising, but only 19% spent time fishing. Beach use was much higher with over 50% participation. Waterskiing was an only slightly larger component of their activity with 17% participation.

Lock users, many of whom were also using large boats, had an activity profile which closely mirrored marina boaters in that 96% reported spending time cruising while fishing and waterskiing remained relatively minor, with 15% and 16% participation, respectively. Beach use, however, was even more prominent with 76% participation. This corroborates the high percentage of lock users who reported spending more than one day on Pools 7 and 8, most of whom spent one or more nights at beach sites.

The activity of cruising is regarded as a catch-all by some respondents, especially those responding to the mail surveys. Those individuals appeared to consider any time not spent fishing, waterskiing, or on a beach as cruising time. Conversely, boaters whose primary purpose was fishing often did not consider time spent en route to or between fishing spots as cruising and would report that fishing consumed 100% of their time. Some boaters also reported cruising as their only activity although they probably had not actually been in motion their entire time on the river.

Boaters were given the opportunity to list other activities they had participated in that were not specifically mentioned on the questionnaires. Between 5 and 12% mentioned spending time on activities such as clamming, commercial fishing, sunning in and swimming from the boat, and visiting marina facilities and restaurants.

Portion of Visit (Percentage of Time) Spent on Activities

If the percentage of their time on the river boaters spent on various activities is examined, some useful observations can be made. These data reveal that activities with low participation may still be a major part of participants' visits. Conversely, activities with high participation may not consume a large portion of those boaters' visit. For example, ramp users had the lowest reported level of participation in cruising at 44%, but those boaters spent the highest percentage of their time on that activity with an average of 57% of participants' visit devoted to it (Figure 11). Dock owners and marina boaters who cruised also spent more than one-half their time on that activity. On the other hand, lock users, nearly all of whom cruised, averaged only 44% of their time on that activity.

The data on time spent on activities indicates that fishing is the dominant or sole activity for participants in some groups, but only a small component of participants' activity in other groups. Fishing was not only the No. 1 activity among ramp users and No. 2 among dock owners in terms of participation, it was also a dominant activity for most of those participants in terms of the portion of their visit they devoted to it, consuming an average of 88% of ramp user and 73% of dock owner fishermen's time. It was previously pointed out that fishing had relatively low participation among marina boaters and lock users. It was also a relatively minor activity for many of those participants, who spent an average of 30 and 19%, respectively, of their time fishing.

Beach Activities

Boaters who spent time on beaches were asked to indicate whether they had participated in several listed beach activities. Over 80% said they used the beach to relax and sun. From 50 to 80% swam from beaches and around 40 to 60% picnicked. About one-quarter to one-third of ramp users and dock owners and around one-half of the marina boaters and lock users were participating in a group outing or party. Less than 20% of ramp users and dock owners said they camped (in the beached boat or on the beach itself), but about one-third of marina boaters and more than 40% of lock users, many who used larger boats and were on multiple-day trips, camped.

For the sake a brevity, the list of boater activities on the exit interviews was pared during the RWG's questionnaire review to the four discussed above: fishing, cruising, waterskiing, and beach use. Some reviewers felt that two other activities that were included on the draft questionnaire, relaxing or sunning in the boat and swimming, were not pertinent to Pools 7 and 8. However, these two activities remained on the mail survey questionnaires.

Figure 10. Boaters' participation in activities

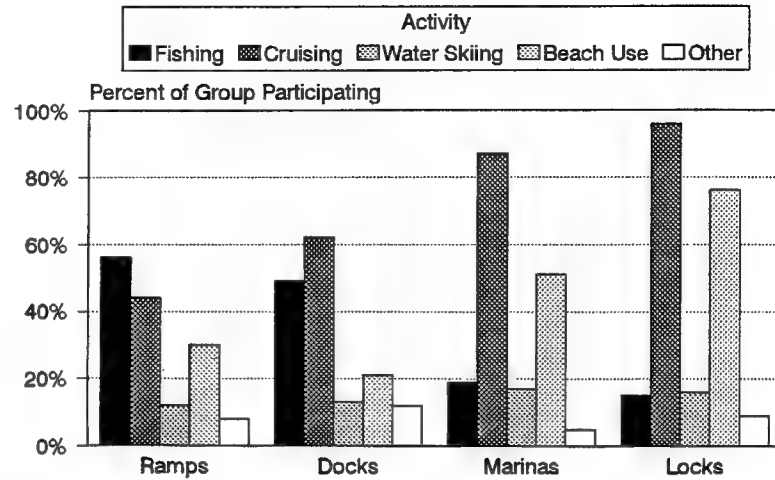
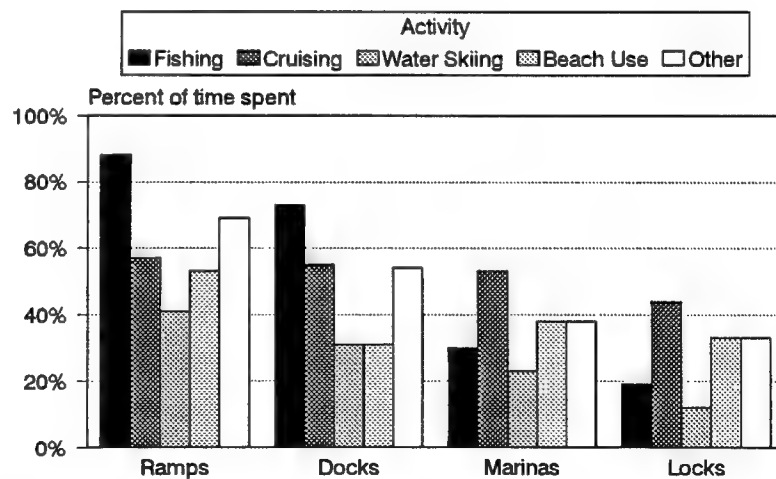


Figure 11. Portion of time spent by boaters on activities



Note: Figures are the average percent of time spent by those who participated in each activity.

The results show that relaxing and sunning in the boat had only moderate (30%) participation among dock owners, but more than half of the marina boaters and nearly three-quarters of the lock users said they spent time on that activity. It appears to be an especially common way for boaters in larger boats, such as cabin cruisers and houseboats, to spend a large part of their day on the water. It can be surmised that this popularity is due to the room and comfort these boats provide and the high fuel costs incurred with extended cruising in these boats.

Swimming was less important with approximately 20% of the dock owners and marina boaters indicating they swam while only about one-third of lock users swam. (There may have been some confusion between swimming as one of the primary activities on the list and swimming listed as a beach activity in the next question. Future surveys would benefit by specifying "swimming from the boat" in the primary activity list.)

Use of Main Channel, Backwaters, and Black River on Pools 7 and 8

There are distinct differences between boater groups as to where they concentrate their use of the river. Only 64% of ramp users interviewed spent time on the main channel, versus 77% of dock owners, 88% of marina boaters, and 100% of lock users (Figure 12). It appears that boaters accessing Pools 7 or 8 from backwaters or the Black River, especially fishermen in smaller boats, often stay near to their access point and do not need to venture into the main channel. A similar pattern is seen in the portion of their time boaters' spent on the main channel. Ramp users spent an average of 33%, dock owners 41%, marina boaters 68%, and lock users 90% of their time in the main channel (Figure 13).

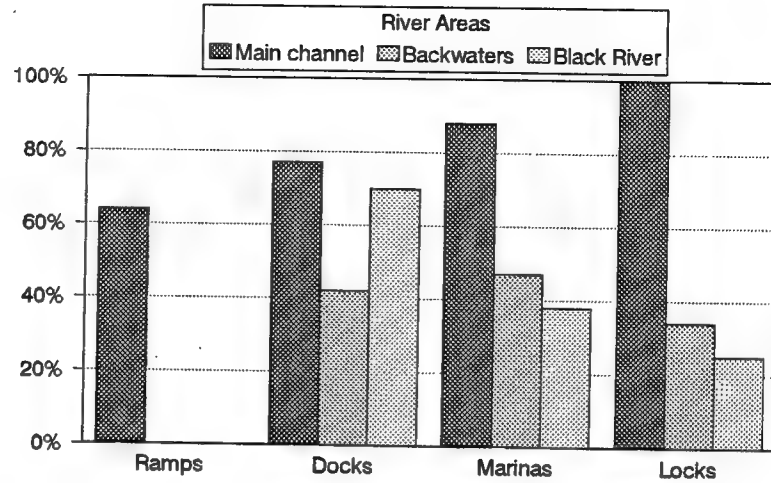
Forty-two percent of dock owners and 47% of marina boaters reported spending time on the Black River during their last outing but they spent an average of less than 20% of their time there. A unexpected 34% of lock users said they spent time on the Black River, but they spent an average of only 7% of their time there.

Differences in backwater use are much more broad with 70% of dock owners spending time in backwaters during their last visit, as compared to only 38% of marina boaters and 25% of lock users. The dock owners averaged 40% of their time in the backwaters, versus 19% for marina boaters, and 3% for lock users. These use patterns are most probably related to the location of about 34% of the docks and boathouses and 24% of the marina slips within Pools 7 and 8 on the Black River and 27% of the docks and boathouses and 10% of the marina slips in backwater areas.

Summary of Boater Activities and River Areas Used

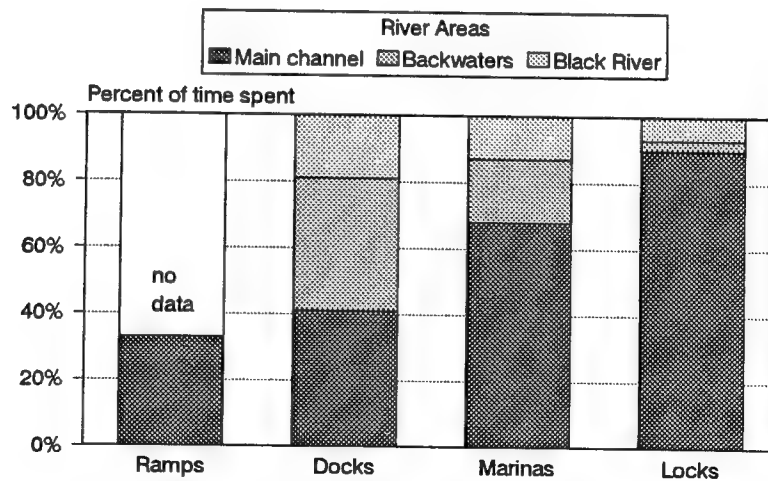
Similarities in the data suggests we can group ramp users with dock owners and marina boaters with lock users when describing in general terms how these groups use the river. Overall, fishermen form the predominant component of the ramp user population and a large though secondary component of the dock owner population. Most other boaters in these

Figure 12. Portion of boater groups using main channel, backwaters, and Black River



Note: Ramp users were asked about main channel use only

Figure 13. Average portion of time spent on areas of river



Note: Ramp users were asked about main channel use only.

populations focus their activity on cruising, along with some beach use, water-skiing, and other activities. Majorities of these groups use the main channel, but most of their time is spent on backwaters and on the Black River.

As for marina boaters and lock users, nearly all are primarily pleasure boaters rather than fishermen. As with pleasure boaters in the other groups, their visits often include time spent water-skiing, swimming, and perhaps fishing. Beach use, however, is an especially large component of these groups' river activity with one-half or more spending one-quarter to one-third of their visits at those sites. Nearly all use the main channel, while only one-third to one-half use backwaters or the Black River. As a group, the majority of marina boaters' and nearly all the lock users' time is spent on the main channel.

Boater Perceptions of and Preferences for Conditions on Pools 7 and 8

We have described the activities of boaters as the first, and most easily observed means of talking about what is happening on Pools 7 and 8. However, these activities can only be taken as broadly descriptive since boaters often engage in several activities on the same trip, and may switch back and forth between activities. Also, there is considerable diversity in how each activity may be practiced and in the conditions under which boaters may prefer to engage in different activities. For example, some boaters may gather on beaches to sunbathe and swim and want to be near to other boaters while others may want to anchor where they can be alone while participating in the same activities. This diversity in how similar activities may be pursued suggests that we must look beyond activities.

Beyond and more important than the activity (and the true product of management) is the recreation **experience**. We observe, or ask about, recreationists behavior (activities) but at the same time recognize that the activity is engaged in because the recreationists believed that activity would allow him/her to fulfill those needs that motivated the activity. Managers provide recreation **opportunities** so that users can have the experiences they desire, and try to meet those motivating needs, in outdoor settings such as lakes, rivers, and trails.

However, it has long been recognized within the outdoor recreation literature that visitors to outdoor recreation areas have widely varying preferences, motivations, and needs (thus we observe the wide variety in how activities are pursued, as noted above). Recognition of this diversity in tastes in outdoor recreation has led to a new understanding of how to define and measure quality in which quality and diversity are closely linked. ***Quality in outdoor recreation thus becomes the degree to which each opportunity, within a system of opportunities providing a wide variety of experiences, satisfies the experiences for which it is planned and managed*** (Manning 1985).

Visitors evaluate their experiences, during and after their participation in recreational activities, as to how well those needs that motivated the activity are being, or were, met. Boaters are contacted at the end of their visit or after they have returned home, using the survey questionnaires, so that they can provide managers with a verbal or written description of their recreation activity and an "evaluation" of their experience.

In order to meet the goal of improving the quality of recreation opportunities being provided, it is necessary to ask the question "Do the opportunities provided facilitate or hinder the attainment of the desired experience?" (Schreyer 1987). Each recreation opportunity is defined by a set of **environmental or natural resource conditions, social conditions, and managerial conditions** (Figure 14). Driver and Brown (1984) have pointed out that, in the most fundamental sense, it is visitors who produce recreation experiences and opportunities, not managers. Managers role in this process is to provide what they believe to be appropriate **settings**, with particular natural resource, social, and managerial conditions (Manning 1985).

RECREATION EXPERIENCES, SETTINGS AND CONDITIONS

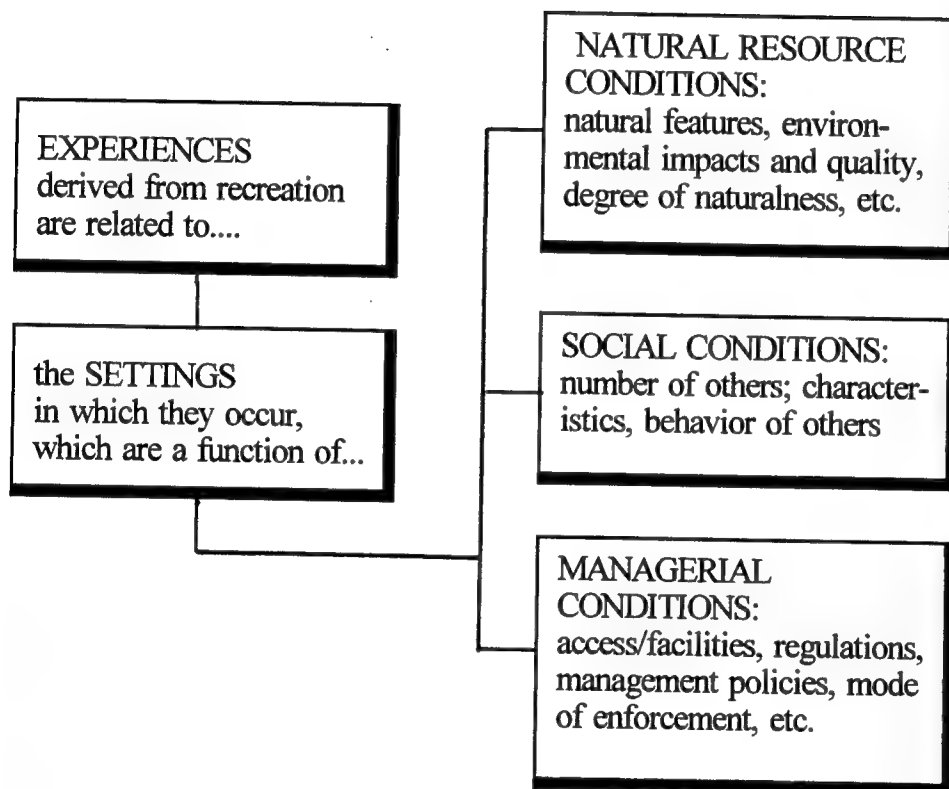


Figure 14. Experiences as a function of setting and conditions.

Since conditions are the basic building blocks of experiences, we ask boaters survey questions about their perceptions of current conditions and preferences for future conditions. Their responses can supply several pieces of information relevant to delivering the conditions boaters' consider necessary for the attainment of desired experiences. The survey responses may indicate:

- 1) The conditions that are desired for the experiences sought by different boater groups and by boaters participating in different activities.
- 2) The current status of these important conditions.
- 3) Changes in conditions that boaters are aware of and the effect of those changes on their use or enjoyment of the resource.

Understanding the recreation resource requires this understanding of what boaters are "coming out for" and what attributes of the setting (conditions) are essential to quality recreation for the diverse range of boaters using the river. The boaters, because of their close contact with and frequent use of the recreation resource, can provide better information on resource and social conditions (and how they are changing) than management personnel can obtain from routine or systematic observation. Also, studies have shown that managers and visitors often have very different perceptions of recreation impacts and problems (Downing and Clark 1979), appropriate behaviors, and management alternatives (Hendee and Harris 1970). Boater survey questions about perceptions of and preferences for conditions include the following:

- 1) Favorite and avoided locations (and why they are favored or avoided).
- 2) Other lakes or rivers used.
- 3) Favorite features on Pools 7 and 8.
- 4) Changes noticed and effect of those changes on recreation.
- 5) Changes desired.

Explanatory Notes on Tables of Categorized Responses to Open-Ended Questions

The tables in this section of the report summarize the responses to the open-ended questions from all four of the boater groups surveyed. *Except where noted otherwise, the figures in the tables are the proportion of responses given by each of the four survey groups that fall into the response categories listed on the left side of the table.* They are intended to facilitate direct comparison of perceptions and preferences between the groups.

To make this comparison possible, the same survey response categories were used for all the groups' responses to each question. There was enough similarity in responses to make this a meaningful way to present this complex data, although there are a few categories for which there were no or few responses from several groups. A category was preserved if a significant number of responses fell into that category from at least one group or if the category of responses was judged to be of enough management interest to be worth separating from the "other" category. An effort was made to limit the portion of responses left to the "other" category to around ten percent. The response categories with the highest proportion of each boater groups' responses are highlighted (bold type) in each table. Detailed lists of the specific open-ended responses which comprise each response category are found in Appendix I.

Before we begin looking at responses to the open-ended questions, the generally low response rate by lock users to these questions should be explained. The lock users were instructed on the mail questionnaire to skip the questions on their perceptions of and preferences for conditions on Pools 7 and 8 (questions 12 - 15) if they felt they had made too few visits or used those pools too infrequently to respond. Nearly half (46%) skipped those questions. This was done to guard against the potential for misleading results.

Boaters' Favorite Locations on Pools 7 and 8

Identifying favorite locations and the characteristics of those locations that make them boaters' favorites reveals much about the conditions boaters consider most important or desirable while locating where boaters find those conditions. These locations play a large part in providing enjoyable experiences on the river for those boaters.

Approximately two-thirds to three-quarters of the boaters who access the river from within Pools 7 and 8 were able to identify at least one favorite location (Table 2, Section I). Only about one-third of the lock users, most of whom we have seen are only occasional visitors to Pools 7 and 8, mentioned a favorite location.

Boaters mentioned scores of different places within Pools 7 and 8 as favorite locations. They usually named (or in the case of exit interviews, pointed to on the map) specific places (e.g., Crater Island, Onalaska spillway, beach at mile 706.5 - Dakota Island) or several-mile long stretches of the main channel (e.g., miles 695 to 699). As shown in Table 2, these responses were categorized by pool and then geographically into main channel, Black River, and various sections of backwaters. Some responses, such as "backwaters," "any beach," and "wingdams," were non-specific and could include many locations on the river. As with the boater activity data, all "favorite location" responses marked on study area maps during the interviews were plotted on a single map using Arc-Info GIS software. The map is found in Appendix J.

When responses specifying **backwater areas** are grouped together, they comprise the greatest percentage of ramp users' and dock owners' favorite locations. Locations on the **main channel of Pool 8** comprise the largest portion of marina boaters' and lock users' favorite locations (and ramp users' and dock owners' as well, when taken as an individual category). Pool 8 locations generally made up three-quarters or more of the responses.

Attributes of Favorite Locations

We have seen that fishing boats are the most commonly used boat at the public launch ramps and coming from private docks and boathouses. Thus, it is logical that ramp users' and dock owners' favorite locations most often provided **good fishing** or the **opportunity to enjoy quiet and relative solitude**, which is considered a desirable component of many fishermen's experience (Table 2, Section II). Other common attributes were the presence of good beaches, good scenery, or good spots to anchor and relax or swim--away from most traffic.

Results of Boater Survey - Boaters' Perceptions and Preferences

TABLE 2. BOATERS' FAVORITE LOCATIONS ON POOL 7 AND 8 AND THE ATTRIBUTES OF THOSE LOCATIONS

	Ramp Users	Dock Owners	Marina Boaters	Lock Users
<i>I. What are boaters favorite places to go on Pools 7 and 8?</i>				
Mentioned favorite locations	64%	76%	79%	36%
<i>Geographically Categorized Favorite Locations (% of responses given by each group)^a</i>				
<i>Pool 7</i>				
Main Channel	11	11	5	17
Lake Onalaska	12	11	10	2
Trempealeau Lakes	5	2	0	0
<i>Pool 8</i>				
Main channel	32	23	54	33
Backwaters: West French Island	6	9	7	2
Black River	14	12	6	9
Backwaters: East of main channel	14	5	4	0
<i>"Backwaters" (general)</i>	1	11	1	0
<i>"Any beach/beaches"</i>	1	2	8	13
<i>Other Non-Specific or Large Areas</i>	3	13	3	24
a. Pool 7 and 8 categories include various locations within each geographic area				
<i>II. Why are those their favorite locations?</i>				
Gave reasons for favorite locations	99%	94%	98%	95%
<i>Categorized Attributes of Favorite Locations (% of responses given by each group)</i>				
Good Fishing	34	23	4	0
Solitude; Quiet; Fewer Boats	16	23	24	11
Good Beaches	13	8	31	16
Close to Home; Convenient	12	13	8	7
Scenery; Wildlife; Other Natural Features	2	11	6	7
Calm/Shallow Water; Less Wakes/Current	13	9	17	5
Facilities/Services	1	3	1	22
See Friends/Family; Social Reasons	3	1	3	11
Deeper Water; Less Obstructions	2	<1	<1	0
Other Reasons	4	10	6	20

Some marina boaters and lock users were also interested in locations that provided solitude, quiet, and fewer boats, but more often their favorite locations were associated with beaches or shore facilities and marinas where "social" conditions dominate. Because many of these boaters are using larger cabin cruisers and houseboats they are unable to use most backwaters. Their use is primarily restricted to the main channel, some side channels and the Black River. As expected, few marina boaters or lock users mentioned fishing in association with their favorite locations since a majority of fishing occurs in backwaters. Furthermore, fishing was only a minor component of these boaters' visits.

Locations Boaters Avoid on Pools 7 and 8

Information about locations that boaters deliberately avoid on the river indicates the opposite of favorite locations; it tells what conditions are detrimental to certain boaters' recreation experience and where on the river boaters have encountered those conditions. As these locations become more numerous and widespread, and thus more difficult to avoid, or as formerly "favorite" locations become "avoided" locations, the quality of more boaters' experiences on the river are impacted and satisfaction diminishes.

Approximately 50 to 60% of boaters, with the exception of lock users, avoided some areas of Pools 7 and 8 (Table 3, Section I). Only 9% of lock users said they avoided any area. Marina boaters and dock owners were somewhat more likely to avoid areas than ramp users. Pleasure boaters and fishermen alike reported avoiding areas.

As with favorite locations, boaters mentioned many different places they avoid, and most were quite specific about the locations. None-the-less, many locations could not be pinpointed on a map (e.g., "shallows," "wingdams") or they covered large areas (e.g., "La Crosse area," "main channel"). The responses were categorized by pool and geographically in a manner similar to that used for favorite locations. The map in which all responses marked on maps during the ramp user exit interviews are plotted is found in Appendix J.

The largest proportion of the areas avoided by most groups included all or parts of the **main channel on Pool 8**. These responses generally comprised 50 to 60% of the avoided locations mentioned. Most of the remaining avoided locations were large or non-specific. Few locations on Pool 7 were mentioned. The response **"the La Crosse area"** or something similar was very common, especially from marina boaters. It is believed that most of those boaters were referring to the Riverside/Pettibone Park section of the main channel, but some may have had a lengthier stretch of the river in mind. For this reason, it was not categorized with "Pool 8 main channel" responses.

Attributes of Avoided Locations

The reasons boaters gave for avoiding certain locations lean heavily towards avoidance of areas with **heavy boat traffic** and the **resulting wakes from that traffic** (Table 3, Section II), which coincides with observed conditions on the frequently-avoided main channel of Pool 8.

TABLE 3. LOCATIONS AVOIDED BY BOATERS ON POOL 7 AND 8 AND ATTRIBUTES OF AVOIDED LOCATIONS

	Ramp Users	Dock Owners	Marina Boaters	Lock Users
<i>I. What locations do boaters avoid on Pools 7 and 8?</i>				
Avoid at least one location	47%	57%	60%	9%
<i>Geographically Categorized Avoided Locations (% of responses given by each group)^a</i>				
<u>Pool 7</u> (various locations)	14	6	0	10
<u>Pool 8</u>				
Main channel (all or part)	61	49	43	50
Black River	4	6	7	0
Backwaters: East of main channel	3	3	3	0
<u>Non-Specific or Large Areas</u> (La Crosse area, shallows, wingdams, etc.)	18	35	47	40
a. Pool 7 and 8 categories include various locations within each geographic area				
<i>II. Why do they avoid those locations?</i>				
Gave reasons for avoiding locations	96%	97%	90%	100%
<i>Categorized Attributes of Avoided Locations (% of responses given by each group)</i>				
Too Many Boats/Wakes	52	56	50	0
Undesirable Water Conditions	22	20	18	67
Undesirable Behavior; Unsafe Boating	6	9	7	0
Poor Fishing	7	2	<1	0
Beaches Not As Desirable	3	2	6	0
Sheriff Patrol; Law Enforcement	<1	3	6	0
Other Reasons	9	7	11	33

Responses in that category comprised over 50% of the reasons given for avoiding areas from each boater group, with the exception of lock users. Most of the remaining features of avoided locations were categorized as **undesirable water conditions** (e.g., shallow, stumps, wing dams, currents). The few lock users who avoided locations were also mostly avoiding shallow areas, rocks, or strong currents.

Features Boaters' Like Best About Pools 7 and 8

Knowing what boaters like best about the river provides an indication of what special attributes the river may have and, in some cases, what they boaters come to the river for (i.e., what are the primary characteristics of the recreation experience they are seeking and why they return). Boaters' opinions of the best features of the river may be similar to the descriptions they give of their favorite locations. However, asking about the "best features" provides information about the river, and the recreation opportunities there, *in general* while asking about favorite locations provides information about conditions at *specific places* on the river.

Nearly all the ramp users interviewed were able to indicate at least one feature they like best about the river. More than one-half of the features they mentioned fell into three categories indicating that they most valued the **closeness, convenience and familiarity** of the river, followed by **good fishing opportunities**, and opportunities to enjoy **peace and quiet** and **low-density use levels** (Table 4). The proximity of the boating opportunities the river provides may seem minor, but the lack of other nearby boating opportunities and boaters' apparent desire to avoid towing their boat to more distant lakes or pools of the river combine to elevate the value of the boating opportunities on Pools 7 and 8.

Somewhat fewer dock owners and marina boaters were able to indicate a favorite feature of the river, but a majority did give at least one response. Dock owners have been shown to have similar in use patterns and preferences to ramp users and this similarity continues in regards to the features they most value about the river. They also value closeness and convenience and good fishing opportunities, but even more frequently mentioned the **scenic beauty and wildlife** present on the river. Marina boaters, too, placed the closeness and convenience of the river along with the scenery and wildlife near the top of their list of "best" features, but were especially appreciative of the availability of **good beaches**.

Less than one-half of the lock users mentioned something they like best about Pools 7 and 8. Those who did respond most often remarked on the scenery, good beaches, and the availability of marina and other shoreline facilities and services. Several lock users also had positive comments concerning the lockmasters and lock personnel.

TABLE 4. FEATURES BOATERS' LIKE BEST ABOUT POOLS 7 AND 8

	Ramp Users	Dock Owners	Marina Boaters	Lock Users
Mentioned a "best" feature	97%	78%	78%	42%
<i>Categorized "Best Features" of Pools 7 and 8 (% of responses given by each group)</i>				
Scenery; Wildlife; Other Natural Features	10	25	21	26
Close; Convenient; Familiar	26	18	21	6
Good Fishing	17	17	3	0
Good Beaches	4	7	22	15
Quiet; Relaxing; Peaceful; Low-Density Recreation Opportunities	13	7	8	11
Facilities/Services	9	3	6	13
Water Quality; Calm Water; Other Water Features	8	12	6	4
General Enjoyment; Good for Chosen Activities	4	5	11	6
Family and Friends; Social Opportunities	5	<1	1	0
Other Features	3	5	2	19

Other Pools, Rivers, and Lakes Used and Why Ramp Users' Chose to Come to the River

Knowing alternate places that boaters choose to visit indicates the range of opportunities for water-based recreation available in the region and suggests sites with which to compare the conditions found on Pools 7 and 8. Knowing why boaters chose to come to Pools 7 and 8 instead of another place they boat provides indications of how Pools 7 and 8 differ from their alternate sites, what is special about Pools 7 and 8, and what unique recreation opportunities are available on Pools 7 and 8 that may be threatened.

About one-half of the ramp users indicated that they boat other places besides Pools 7 and 8, especially on other pools of the Mississippi River (Table 5). Over 110 other pools, rivers and lakes were mentioned but **other Mississippi River pools comprised nearly one-half, and the pools adjacent to the study area (Pools 6 and 9) comprised more than one-quarter of all responses.** The other rivers and lakes visited were primarily in Wisconsin and Minnesota.

Ramp users' primary reason for choosing to boat on Pools 7 and 8 rather than one of the other places they mentioned was the **proximity of the launch site to their homes** and their **familiarity with this part of the river.** Several others chose Pools 7 and 8 because they enjoy **good fishing** there or because they want to prepare for fishing tournaments on the area. These responses closely parallel their opinions of the rivers' "best" features, as reviewed under the previous report subheading.

Only about one-quarter of the dock owners and one-third of the marina boaters said they boat other places besides Pools 7 and 8, and they spend only about one-fourth as many days at those places as they spend on the study area. This matches the results of previous studies on Corps lakes, in which the convenient access these boaters enjoy and the investment they have made in their docks or rental slips causes them to do all or most of their boating on the study area. Each group mentioned around 40 other places they boat, with one-half to three-quarters of the responses specifying **other Mississippi River pools.** Once again, the adjacent pools receive a large part of that use, especially from marina boaters, many of whom have large, difficult-to-tow boats. Dock owners and marina boaters were not asked why they chose to use Pools 7 and 8 for their most recent visit because their immediate access to the river and investment in that access provides an obvious incentive to focus their use there.

About one-half of the lock users boat on other rivers besides the Mississippi and on lakes (obviously, all the lock users boat on other Mississippi River pools since they used other pools to reach the study area). They mentioned about 30 other places they boat, with the St. Croix and Wisconsin Rivers and Lake Superior most frequently mentioned. In a typical year, they spend, on average, more than twice as many days boating at those other places than they spend on Pools 7 or 8. When the lock users were also asked to list the Mississippi River pools they use most often, most listed one to three pools. Their use is fairly well distributed upstream and downstream of the study area with Pools 3 through 10 each mentioned by 18 to 27% of respondents. Thirty percent said Pool 7, Pool 8, or both pools were among those they use most often.

**TABLE 5. OTHER POOLS, RIVERS, AND LAKES USED -
RAMP USERS REASONS FOR CHOOSING TO COME TO POOLS
7 OR 8**

	Ramp Users	Dock Owners	Marina Boaters	Lock Users ^a
Percentage who boat other places	51%	25%	34%	46%
Number of other locations mentioned	116	43	40	32
Average number of days boat at alternate locations per year	NA	11	10	19

Importance of Other Mississippi River Pools as Alternate Boating Sites

Other Miss. River Pools (percent of all responses)	47%	49%	76%	NA
Adjacent Pools (Pool 6 and 9) (percent of all responses)	27%	26%	54%	18 (pool 6) ^b 22 (pool 9)

Reasons Ramp Users Chose to Come to Pools 7 or 8 (% of all responses)

Close; Convenient; Familiar	57
Good Fishing	12
New; Change of Pace	7
Friends; Family	6
Water Qualities; Natural Resource Feat.	4
Commercial Harvest	2
Public Facilities	2
Other Reasons	11

a. Lock users were asked about other rivers and lakes only (all used other pools to access Pools 7 and 8).

b. Figures are percent who listed pool as one they *most frequently* use. Thirty percent of lock users mentioned Pool 7 and/or 8 as one they most frequently use. Pools 3 - 10 were each mentioned by 18 to 27% of respondents.

Changes Boaters Have Noticed on Pools 7 and 8

Because most boaters spend much more time on the river than most managers or rangers and because, as we have seen, many have several years of experience on the river, they are a good source of information about changes that are occurring on the river. In addition, boaters may be more aware of or concerned about changes that are affecting their enjoyment or use than managers who may not often recreate on the river.

About two-thirds to three-quarters of the boaters surveyed, excepting lock users, have noticed changes occurring on Pools 7 and 8 in the last five years (or since they had been boating on the river, if they have been coming less than five years). About one-quarter of the lock users mentioned at least one change they had noticed (Table 6).

It may be that survey respondents are more likely to mention negative rather than positive changes. However, boaters were specifically asked about *both positive and negative changes* they had observed. The majority of changes mentioned by most groups were negative with most of the remaining responses categorized as neutral (no positive or negative effect clearly indicated) or mixed (change has possible positive *and* negative effects). Positive changes typically comprised 15% or less of the responses.

The change perceived by the greatest number of ramp users was a **decline in the quality of fishing** on the study area. Other commonly mentioned changes (also negative) include **more boat traffic**, **more large boats** and **crowding**, and continued **siltation in backwaters**. Dock owners registered fewer complaints about a decline in fishing, but even more frequently mentioned **increases in boat traffic** and **crowding**, and **problems with siltation**. Marina boaters also were most aware of **increases in boat traffic and crowding**, and nearly as frequently mentioned concerns about **erosion and littering of beaches and shorelines**.

About one-half the changes noticed by lock users were positive, about one-third were negative and the remainder were neutral or mixed. On the positive side, they appreciated the installation of **lockage information boards** at the locks and felt **service had improved at the locks**. Others recognized the presence of more beaches (dredge disposal sites) and felt water quality had improved. On the negative side, they most often mentioned increases in boat traffic.

Results of Boater Survey - Boaters' Perceptions and Preferences

TABLE 6. CHANGES BOATERS NOTICED (THAT OCCURRED IN THE LAST 5 YEARS) ON POOLS 7 AND 8

	Ramp Users	Dock Owners	Marina Boaters	Locks Users
Noticed at least one change	77%	74%	67%	23%
<i>Categorized "Changes Noticed" (% of responses given by each group)</i>				
<u>POSITIVE CHANGES</u>				
<i>Resource Conditions</i>				
Water Quality Improved	2	4	4	14
Beaches/Shoreline Impr.; More beaches	5	2	4	14
Fishing Improved	2	<1	0	0
<i>Managerial/Facilities Conditions</i>				
Facilities/Services Improved	5	1	<1	18
<u>NEGATIVE CHANGES</u>				
<i>Resource Conditions</i>				
Fishing Worse	20	11	4	4
Beaches/Shoreline Dirty/Eroding	6	10	22	7
Siltation/Filling in of Backwaters	11	15	6	0
Water Quality Worse	2	3	<1	4
<i>Social Conditions</i>				
More Boat Traffic/Lg. Boats/Crowding	14	23	23	14
More Conflicts with Other Boaters	3	6	4	4
<i>Managerial/Facilities Conditions</i>				
Facility/Service Decline	3	0	4	0
<u>NEUTRAL/MIXED CHANGES</u>				
<i>Resource Conditions</i>				
Changes in Aquatic Vegetation	7	5	4	0
Dredging of Lk. Onalaska/Main channel	3	3	1	0
Changes in Wildlife Populations	3	4	<1	0
Changes in Channel/Obstructions due to High Water	2	<1	<1	0
<i>Managerial Conditions</i>				
More/New Regulations; Changes in Patrol	9	5	9	7
<i>Other Changes</i>	6	9	11	14

Effects of Changes Noticed on Boaters Enjoyment and Use of Pools 7 and 8

The meaning of the changes boaters have noticed is not apparent until boaters indicate if the changes they mentioned have had any effect on their enjoyment or use of the river. Boaters may cite positive or negative effects on their use of the river, or they may report an increase or decrease in how often they use the river.

About two-thirds to three-quarters of the boaters who had noticed changes on Pools 7 and 8 mentioned an effect of those changes on their enjoyment or use of the river (Table 9). Since most of the changes noticed were negative changes, it follows that most of the effects boaters mentioned are negative effects.

Many of the effects that were categorized as "neutral" or "mixed," especially changes in activities and reduction in use, could be considered negative effects, assuming that respondents would prefer to use the river more or not change their activities or use patterns. They were not categorized as negative since it could not be assumed boaters' satisfaction was diminished by transferring use to alternative locations or by changing their activities or use of the river (e.g., "avoid weekends," "ski less").

Ramp users and dock owners most often said that **fishing is worse and less enjoyable**, and some are fishing less often. This supports findings that these boaters frequently use fishing boats, that fishing is an important activity for them (in terms of the proportion who fish and the proportion of their time they spend fishing) and that they most often noted a decline in fishing and an increase in boat traffic, which tends to make fishing less enjoyable. They nearly as frequently said that **boating in general was less enjoyable on Pools 7 and 8**. Since fishing is not an important activity for most marina boaters, most of the effects they mentioned were in the category of general boating being less enjoyable. Marina boaters were especially bothered by **fewer beaches being available** and **beaches being more crowded**.

Lock users followed up their listing of mostly positive changes with corresponding positive effects on their boating (e.g., "more positive place to come and use"). The few negative effects were complaints about long waits at the locks.

TABLE 7. EFFECTS OF CHANGES NOTICED

	Ramp Users	Dock Owners	Marina Boaters	Locks Users
Mentioned at least one effect	72%	70%	68%	63%
<i>Categorized Effects of Changes Noticed (% of each groups' responses)</i>				
<u>Positive Effects</u>				
Boating More Enjoyable; Other				
Positive Effects	15	16	15	56
Fishing Improved	1	2	0	0
<i>Subtotal:</i>	<i>16</i>	<i>18</i>	<i>15</i>	<i>56</i>
<u>Negative Effects</u>				
Fishing Worse/Less Enjoyable; Fish Less	33	24	7	6
Boating Less Enjoyable; Other				
Negative Effects	23	21	43	19
<i>Subtotal:</i>	<i>56</i>	<i>45</i>	<i>50</i>	<i>25</i>
<u>Neutral or Mixed Effects</u>				
Changes in Activities; Use River Less	19	21	26	13
Avoid Busy Days/Times/Areas	7	11	4	6
Affects on Hunting/Other Wildlife- Related Activities	2	4	<1	0
<i>Subtotal:</i>	<i>28</i>	<i>36</i>	<i>31</i>	<i>19</i>
Other Effects	0	<1	4	0

Changes Boaters Would Like to See on Pools 7 and 8

Previous studies at Corps lakes have shown that, even among those who have a high level of satisfaction with their recreation experiences on a lake, boaters often have a wide variety of requests for changes they would like to see. Frequently, the changes requested are related to problems they have experienced with other boaters or are requests for improvements in public facilities. Other requests are related to boating regulations or management policies they do not agree with or, conversely, new boating regulations they feel are necessary to address a particular problem they perceive. Many of these requests may be clearly impossible to satisfy or they may not be under the control of project managers. Others may coincide with management goals and options. Such requests may be used to prioritize and target management efforts and expenditures.

From 55 to 70% of the study areas' boaters, not including lock users, had in mind at least one change they would like to see on Pools 7 and 8 and many had several requests (Table 8). There is little agreement, however, regarding the specific changes requested.

Ramp users were most interested in **improvements to the launch ramps and associated facilities**. Besides improvements to the ramps themselves, they requested more courtesy docks, garbage cans, rest rooms, and parking. There were few requests for more launch areas. Ramp users also indicated considerable interest in **improvements to the fishery** (some had specific recommendations), **more work in backwaters** to prevent siltation and to open up areas that have filled in, and **more or improved (e.g., flatter, cleaner) beaches**.

Dock owners had few requests for changes related to shoreline facilities or the fishery. Instead they targeted the greatest number of their requests at **more dredging to improve flow in and access to backwaters**. Other frequent requests were for **additional or improvements to beaches** and changes in **boat patrol and enforcement of boating regulations** (e.g., more patrol).

Marina boaters continued to stress their interest in beaches in that about one-third of their requests for **more or improved beaches**. Their remaining requests were evenly distributed throughout several different categories, with some of the more frequent requests being for **more patrol and law enforcement on the river**, more control of jet skis, and speeding up of recreational lockages.

A low 15% of lock users mentioned changes they would like to see. Most of the requests were for faster or easier recreational lockage through locks for recreational boats and locking schedules, and for creation of more beaches.

TABLE 8. CHANGES BOATERS WOULD LIKE TO SEE ON POOLS 7 AND 8

	Ramp Users	Dock Owners	Marina Boaters	Lock Users
Mentioned at least one change desired	70%	63%	55%	15%

*Categorized Desired Changes by Boaters (% of responses given by each group)*Changes/Improvements in Natural Resource Management and Facilities

More Dredging in Backwaters; Control of Siltation and Erosion	11	22	6	5
Improved/More Sandbars and Beaches	10	13	33	21
Improvements/Additions to Shoreline Facilities/Services	21	3	4	16
Changes to Fishery Management/ Fishing Regulations	13	5	1	0
Improve Water Quality/Pollution Control	2	3	5	0
Control Weeds/Improve Navigation in Backwaters	6	1	2	0

Changes/Improvements in Visitor Management

Changes in Patrol/Enforcement of Boating Regulations and Etiquette	5	13	10	5
Limit/Zone/Disperse/Restrict Use	6	9	4	5
Changes in No-Wake Zones/Speed Limits	4	11	4	0
More Boater Training/Education; Better Behavior	4	2	2	0
Restrict Boat Size/Horsepower	2	4	1	0

Miscellaneous Changes/Improvements

Changes in Commercial Traffic/ Lockage Policies	2	3	7	32
Misc. Changes to Management Policies /Regulations	4	1	0	0
Fix/Build Wingdams	<1	0	2	0
Other Changes Desired	9	8	16	16

Problems and Conflicts with Other Boaters on Pools 7 and 8

In previous studies on Corps lakes, conflicts with other boaters have been identified as among the most urgent concerns for boaters. As the number of boats on the water increases and changes occur in the types of boats being used (e.g., more personal watercraft, larger and faster boats) conflicts are likely to increase. Many of the conflict problems are also safety issues. Though the number of boating accidents may not immediately increase with these changes, boaters often report feeling less safe out on the water and may report more "close calls."

Few ramp users reported any problems or conflicts with other boaters (Table 9). The few problems mentioned were mostly instances of discourteous behavior (e.g., loud music, drunk people) or unsafe boating (e.g., boats coming by too fast and too close).

A substantially higher percentage of dock owners and marina boaters reported problems and conflicts with other boaters. The 29% of dock owners who mentioned a problem or conflict most often listed **discourteous behaviors**, especially **"boats making large waves or wakes"** and **"inconsiderate high-speed boaters."** Many of those with complaints were fishermen who were trying to fish when disturbed by these actions. The 21% of marina boaters who reported problems with other boaters divided their complaints evenly between **discourteous and unsafe behaviors**.

Although the survey question regarding conflicts with other boaters was identical on the exit interview and mail-back survey instruments, boaters appeared to answer the question in differing contexts. Ramp users answered the question in regards to the day of the interview, as was intended. Some dock owners and marina boaters, however, appear to have been referring to conflicts that may have occurred in the past but not necessarily during their

TABLE 9. PROBLEMS AND CONFLICTS WITH OTHER BOATERS

	Ramp Users	Dock Owners	Marina Boaters	Lock Users
Mentioned a problem or conflict	4%	29%	21%	11%
<i>Categorized Problems with Other Boaters (% of responses given by each group)</i>				
Unsafe Boating/Ignoring Boating Rules	35	37	35	62
Discourteous Behavior	24	56	35	15
Personal Watercraft Problems	6	7	13	8
Other Conflicts	35	0	17	15

last boat outing on the river. This difference may explain the greater percentage of mail survey recipients reporting problems. Minor adjustments to the mail survey instrument should produce more comparable responses.

Few lock users reported conflicts or problems. This is not unexpected since most lock users are infrequent visitors to Pools 7 and 8 and most are in large boats and so are less likely to be disturbed by wakes. Also, few lock users fished and, consequently, the conflicts between fishermen and pleasure boaters seen in the other boater groups did not arise. Several of the problems listed were related to use of the locks, especially boaters entering and leaving the locks in an unsafe or discourteous manner.

Categorization of reported problems and conflicts with other boaters presented some challenges. Some behaviors categorized as "discourteous" may actually be instances of unsafe or illegal boating, but the distinction was not always clear from boaters' descriptions. For example, a response such as "boats making big wakes" may be considered a discourteous behavior if it occurred at some distance from the respondent. It may be an unsafe or even illegal behavior if it occurred very close to the offended boater. Similarly, complaints about speeding boats may be instances of discourteous behavior if the speeding boat was at some distance yet still made the offended boater nervous. The same behavior could be accurately described as an unsafe behavior if the speed was accompanied by the boat coming too close. Only first-hand observation by a qualified individual would allow an accurate determination. For this study, only behaviors that were *clearly* unsafe, or illegal (actions for which a boater could be ticketed, such as ignoring a no-wake zone), were placed in that category.

Some of the discourteous behaviors mentioned were not water-based conflicts but rather were behaviors that lessened boaters enjoyment of beaches such as littering, use of fireworks, and playing of loud music. Because of the immediacy of problems with personal watercraft, responses that specifically mentioned them were categorized separately.

Problems with Tows on Pools 7 and 8

Because recreational boaters on the Mississippi River must also contend with commercial barge traffic, in addition to other recreational boats, managers need to know if they are experiencing any conflicts with tows on the river. Boaters also must share use of the locks with commercial traffic to move from one pool to another. Recreational lockages have been increasing in recent years at both Lock 6 and Lock 8 and reached new highs in 1992 (the most recent year for which data were available). As recreational lockages increase, waiting time at the locks may lengthen.

Few boaters in any of the boater groups reported problems with tows and even fewer reported navigation or safety-related conflicts (Table 10). Only two individuals interviewed at ramps had any problems (an one of those individuals was in a canoe!). The eight and ten percent of dock owners and marina boaters who reported conflicts with tows most often were complaining about **waiting too long to lock** or not being able to plan ahead when to lock

TABLE 10. BOATERS' PROBLEMS WITH TOWS

	Ramp Users	Dock Owners	Marina Boaters	Lock Users
Mentioned a problem with tows	<1%	8%	10%	5%
<i>Categorized Problems with Tows (% of responses given by each group)</i>				
Lock Usage/Conflicts	0	38	46	60
Large Wakes; Other Safety Concerns	100	14	21	20
Shoreline Erosion; Disrupt River Bottom	0	24	17	0
Other Complaints	0	24	17	20

through. Other boaters mentioned concerns about shoreline and river bottom erosion caused by prop wash from tows. Generally less than 20% of the problems mentioned with tows were safety concerns or navigation conflicts. Most of these problems were related to wakes caused by tows and a few respondents felt the tows are a safety hazard, especially for small boats.

Accidents or Safety Hazards on Pool 7 and 8

RWG members wanted to ensure that the boater survey would identify any unsafe conditions existing on the study area, including those caused by other boaters and by physical hazards. Information on these types of threats had been obtained in previous studies on Corps lakes through responses to questions discussed earlier in this report, but accidents and safety hazards were not specifically mentioned in those questions.

Thirteen percent of the ramp users and lock users and 23% of the dock owners and marina boaters mentioned accidents, near accidents, or safety hazards they had seen or experienced (Table 11). The great majority of each groups' responses specified **unsafe boating behaviors** that threatened the respondents' or other boaters' safety. However, many of those responses echoed those given in response to the previous question about problems and conflicts with other boaters. This includes responses such as "jet skiers coming too close," "boat passing too close and causing large wake," and "boats speeding in backwaters."

The few individuals who mentioned accidents or near accidents most often referred to boats running aground or hitting obstructions. Some ramp users mentioned unsafe behavior by non-boaters such as "person jumped off railroad bridge." A variety of physical hazards comprised the remainder of responses and included such things as glass on beaches, submerged logs, sandbars, and stumps in backwaters and side channels, and floating debris in the main channel.

TABLE 11. ACCIDENTS AND SAFETY HAZARDS SEEN OR EXPERIENCED

	Ramp Users	Dock Owners	Marina Boaters	Lock Users
Mentioned accidents/safety hazards	13%	23%	23%	13%
<i>Categorized Accidents/Safety Hazards (% of responses given by each group)</i>				
Unsafe Boating	66	96	76	92
Accidents/Near Accidents	11	2	9	0
Unsafe Behavior by Non-boaters	6	0	0	0
Physical Hazards	17	2	16	8

A final question in which boaters were asked if they had "any other problems" was used to identify any problems not mentioned in response to previous questions. Only 7% of ramp users and 1% or fewer of the other boater groups mentioned additional problems. The problems listed were generally weather-related or mechanical problems with the boat.

Boaters Perceptions Regarding Use Levels and Crowding on Pools 7 and 8

The survey obtained information from boaters about their perceptions of crowding on the river through two questions that measured their expectations and preferences regarding the numbers of other boats they saw on Pools 7 and 8 during their visit. Use of these questions is supported by the notion that recreationists' perceptions of crowding are primarily influenced, not by density, but by both expectations and preferences for contacts with others while recreating (Womble and Studebaker 1981, Shelby et al. 1983).

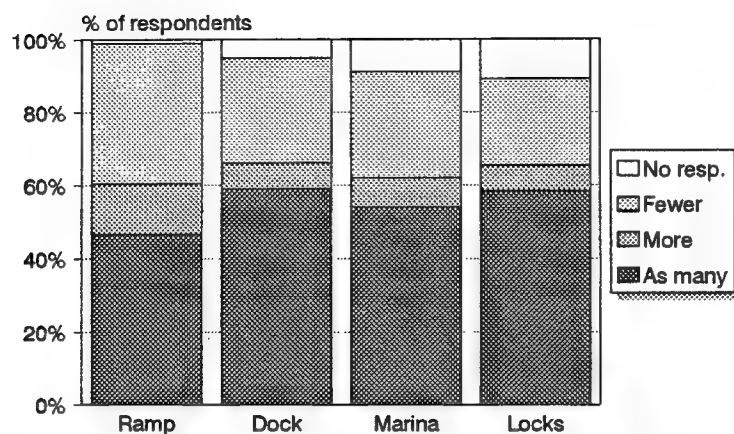
One limitation of this method of assessing boaters' perceptions of crowding is that it does not account for displacement, a phenomenon not measured during on-site or mail-back boater surveys. Displacement is change in visitors' use of the recreation resource in response to undesired changes in conditions (e.g., increasing numbers of boats, or a change in the nature of boating activity by others). Boaters who no longer come to Pools 7 and 8 due to changes in conditions are completely displaced and would not be contacted with the survey methods used in this study, which were limited to contacts with present users. In other words, there may be boaters who would have responded that there are more boats than they would like to see on Pools 7 and 8, but because they have already ceased boating on the area, these boaters will not be accounted for. Temporal or spatial displacement can be detected, however, by the number of boaters who, in response to previous questions about changes noticed and their effects, reported making changes in the areas of the river they use, or the times or days they boat, due to undesired changes.

Expectations for Number of Boats on Pools 7 and 8

Satisfaction will likely be diminished for boaters who encountered conditions that are worse than what they expected as compared to those who encountered conditions close to or better than what they expected. A high proportion of respondents reporting conditions different than expected, especially among respondents with several years experience at a location, may also indicate that conditions are changing rapidly.

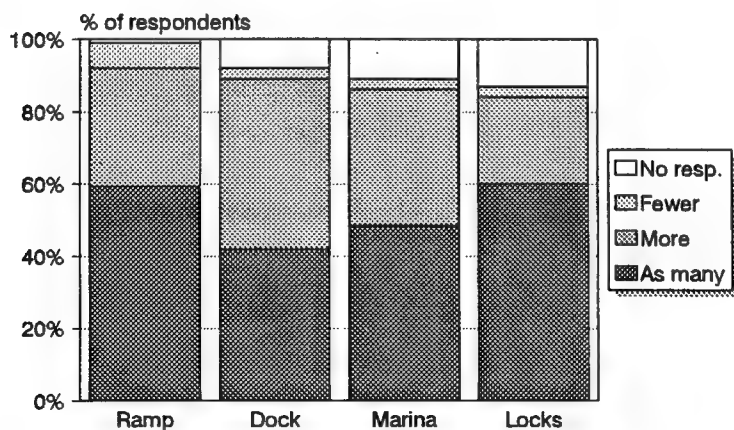
About 50 to 60% of each boater group said they saw "about as many" boats as they expected to see during their last outing on Pools 7 and 8 (Figure 15). However, **about 40% of the ramp users, 30% of the dock owners and marina boaters and one-quarter of the lock users said they saw 'fewer' boats than they expected.** Only 14% of ramp users and 8% or less of the other boater groups said they saw "more" boats than they expected. These results may indicate somewhat reduced use levels in 1994, which may still have been rebounding from 1993, a flood year in which there was high water on Pools 7 and 8 through much of the boating season.

Figure 15. Expectations for number of boats



"Saw ___ boats than expected to see"

Figure 16. Preferences for number of boats



"Saw ___ boats than would like to have seen"

Preferences for Number of Boats on Pools 7 and 8

Knowing the preference of boaters for the number of other boats on the part of the river they use, as compared to the number they actually encountered or perceived, provides some indication of their satisfaction with use levels on the river during their visit. Boaters familiar with the resource may find conditions close to what they *expected* but those conditions may not match their *preference*. Focusing on those who saw more boats than they preferred during their visit, we can investigate what parts of the study area they used and we can identify who those boaters are in terms of the type of boating they do, the activities they participate in, and their mode of access to the water.

This measure is a good indicator of the effect of increasing numbers of boats on boaters, and it should be a part of repeated monitoring measurements. If more boaters feel their recreation experience is being diminished by the presence of too many other boats, the number of boaters responding that they "saw more boats than they would have liked" is likely to rise.

Though we have seen that many boaters encountered *less* boat traffic than they thought they would on Pools 7 and 8, **from one-quarter to nearly one-half of each boater group would like to have seen still fewer boats** (Figure 16). Dock owners and marina boaters appear to be particularly sensitive to higher use levels. But, judging by the boat types used and the activities pursued, a variety of boater types preferred lower use levels, including fishermen, pleasure cruisers, and beach users.

Among the dock owners who would like to have seen fewer boats, nearly one-half used fishing boats with most of the remainder using runabouts. Turning attention to the primary activity of these boater, more than 40% spent a majority of their time fishing and 35% were primarily pleasure cruisers. Marina boaters who felt that boat traffic was too heavy are somewhat different, since few use fishing boats and fishing is less important to them. More than one-half of those who saw more boats than they would have liked used houseboats and cabin cruisers (as do about one-half of the marina boater group as a whole). Only about ten percent were primarily fishermen, while about 40% spent most of their time cruising, 21% mostly relaxed and sunned in their boat, and 18% were primarily beach users.

Among the one-third of ramp users who said they saw more boats than they would like to have seen, more than one-half were using fishing boats while about 40% were using runabouts and ski boats (similar proportions to the group as a whole). Nearly one-half of these boaters spent most of their time fishing, while 26% spent most of their time cruising and 19% were primarily beach users.

3 Results of Aerial Boat Counts

A total of 13 aerial boat counts were completed for this study to document use levels and boat traffic distribution. One weekday morning "practice" flight was completed before a final decision was made to use aerial rather than on-water observations to gathering boating use data. This initial flight allowed the observer to determine the best flight route for the counts and demonstrated that it was possible for an airborne observer to see and mark on a map of the study pools the locations of all or most active and beached boats.

A flight schedule was established after it was determined that it would be possible to conduct a sufficient, although limited, number of aerial counts using a Wisconsin DNR pilot and plane early in the summer and later using a privately chartered plane. With the intent of gathering the maximum amount of peak-use data, it was decided to conduct the remaining counts during the afternoon and forego additional morning counts. (With more frequent counts or when using on-water count procedures, the schedule could be expanded to include counts earlier and later in the day. The additional counts can further illustrate changes in use levels and use patterns throughout the day.)

The first five flights making use of the Wisconsin DNR plane and pilot were required to begin by 1:00 p.m. The remaining flights using the private charter service were scheduled to begin at 3:00 p.m., since use was believed to peak in the mid-afternoon. Counts were scheduled on both weekdays and weekends to allow comparison of use levels and boat traffic distribution. Additional information on flight routes, schedule, and procedures and the limitations of this method can be found in Appendix A.

The total number of boats and the number and proportion of active and beached boats observed during each flight were tallied from the maps and are reported in Table 12 and illustrated in Figures 17 and 18.¹ Weekday afternoon counts ranged from 80 to 134 boats. (The single morning count was the lowest overall.) Weekend counts were two to four times as high and ranged from 223 to 498 boats.

It is appropriate to remind the readers here that the count figures *do not* represent the exact number of boats on the pools at a specific time because each count took up to one hour and twenty minutes to complete. During that time, it is likely some boats entered and left the pools at access points and through the locks. Also, the number of boats on the water may have been greater when the flight was completed than when the count began since the counts began earlier than the time when use appears to peak (i.e., 4:00 - 6:00 p.m., based on trailer counts at the launch ramps, where it is estimated 60% of the boats originate).

¹ Data was lost from the count conducted on Saturday, July 16 beginning at 1:00 p.m. The weather during the count was cool (70°F) with a light shower occurring, and boat traffic was relatively light.

TABLE 12. POOLS 7 AND 8 AERIAL BOAT COUNTS

Count Day and Date	Count Time	Active/Beached ^a	Pool 7/Pool 8	Total
<i>Weekend Days</i>				
Sunday, June 12	12:50 - 1:45 p.m.	279/63 (18%)	119/223	342
Saturday, June 25	1:15 - 2:00 p.m.	315/69 (18%)	137/247	384
Sunday, July 17	1:20 - 2:40 p.m.	352/146 (29%)	145/353	498
Saturday, August 6	3:10 - 4:00 p.m.	263/87 (25%)	77/273	350
Sunday, August 14	3:05 - 3:50 p.m.	176/47 (21%)	48/175	223
Sunday, August 21	3:10 - 4:00 p.m.	360/112 (24%)	112/360	472
<i>Weekdays</i>				
Wednesday, June 15	9:25 - 10:00 a.m.	53/7 (12%)	16/44	60
Thursday, June 23	1:00 - 1:45 p.m.	120/13 (10%)	35/98	133
Tuesday, July 26	1:15 - 1:55 p.m.	70/10 (13%)	28/52	80
Thursday, July 28	3:10 - 4:00 p.m.	111/23 (17%)	33/101	134
Tuesday, August 2	3:00 - 3:55 p.m.	105/21 (17%)	32/94	126
Wednesday, Aug. 17	3:33 - 4:17 p.m.	76/23 (23%)	27/72	99

a. "Active" boats refers to those that were observed out on the water rather than beached. However, these boats may not have been moving; indeed many were stationary as the occupants fished or relaxed in the boat.

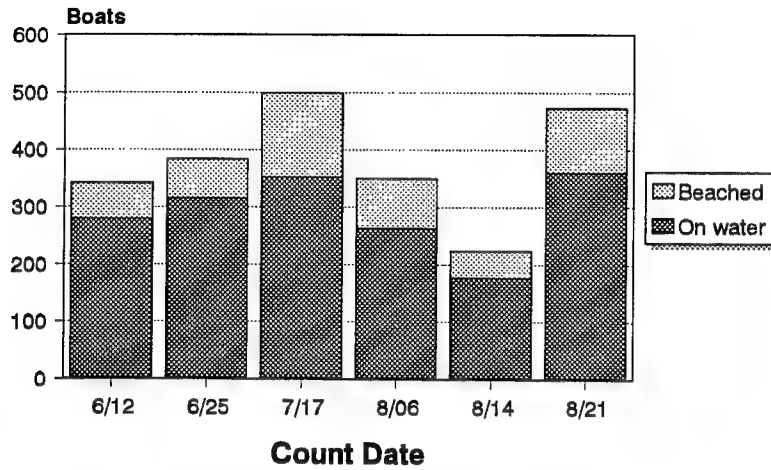
However, the count figures can be used to provide a "ball park" estimation of use levels and indicate the relative amounts of use various parts of Pools 7 and 8 receive. Although recent overflight count information was available for the main channel, use estimation information had been especially lacking for backwater areas. The count data gathered during the flights remains in its original form of hand-drawn marks on study area maps. The potential exists for the data to be digitized and maps produced depicting the locations of beached and active boats using Geographic Information System (GIS) software.

Distribution of Boats on the Study Area

Boat traffic was consistently lighter on Pool 7 than on Pool 8 during the count flights. On both weekdays and weekends, from just less than one-quarter to slightly more than one-third of the boats observed were on Pool 7, with two-thirds to three-quarters on Pool 8.

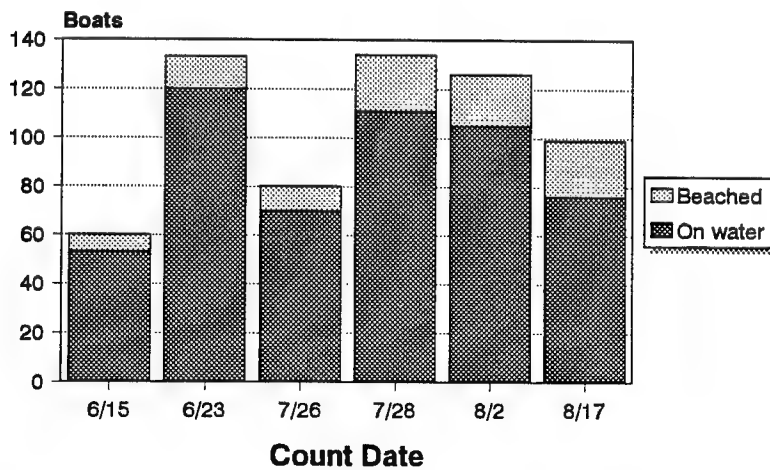
Traffic was fairly evenly distributed along the main channel of Pool 7 with some concentrations associated with beaches at each end of the pool. Boats were usually observed

Figure 17. Weekend boat counts on Pools 7 and 8



Note: All counts were conducted between 1:00 and 4:00 p.m.; each count took approximately 45 minutes.

Figure 18. Weekday boat counts on Pools 7 and 8



Note: 6/15 count began at 9:25 a.m.; all other counts were conducted between 1:00 and 4:00 p.m.

on the Trempealeau lakes but the backwaters south of that area were very lightly used. The Lake Onalaska backwater was used more heavily, with 50 or more boats observed on some weekends, primarily on the eastern side and north of French Island.

Boat traffic on the main channel of Pool 8 was also fairly evenly distributed, with some concentration noted in the Riverside/Pettibone Park area near the Cass Street bridge. Few boats were usually seen south of Stoddard. The Black River was consistently busy, especially between the Clinton Street bridge, where several launch ramps are located, and the confluence with the Mississippi River. The backwaters to the west of French Island and to the west of the main channel (i.e., Blue Lake and the Root River area) were lightly used, but more boats were seen in the Bluff Slough area and in the maze of backwater channels to the north and west of Goose Island. The shallow backwaters to the south of Goose Island and the Wisconsin Islands backwater at the southern end of Pool 8 were almost vacant.

Beach Use Observations

From 10 to 23% of the boats observed on weekdays and 18 to 29% of those observed on weekends were beached. High numbers of beached boats were noted in three general areas; on the beaches just downstream of Lock and Dam 7 and the I-90 bridge, on the beaches near Green Island (especially on Coney Island), and all along the chain of beaches stretching from Lawrence Lake to Brownsville on the east side of the main channel. As many as 50 boats were counted on these latter beaches on weekend afternoons.

4 Results of Trailer Counts at Public Launch Ramps

Counts of boat trailers at public launch ramps were conducted concurrent with exit interviews of boaters in order to estimate the amount of use the ramps receive. Interviewers counted the number of boat trailers present at the beginning, two hours into, and at the end of each four-hour exit interview period. These figures can also be compared to the number of boats counted on the study area during aerial observations to arrive at a rough estimate of the proportion of boat traffic originating from the ramps.

Too few counts were done at individual ramps to allow statements to be made about the number of boats originating from each ramp. However, an adequate number of counts were done overall at the eight high-use and 16 low-use ramps where interviews were scheduled to support meaningful statements about the number of boats coming from those two classes of ramps.

Use Levels at "High Use" Ramps

The trailer counts indicate that weekday use of the "high use" ramps is low throughout the day, with only a slight rise in use in the afternoon and early evening hours (between 2:00 and 8:00 p.m.). An average of about three trailers per ramp were counted at 8:00 a.m. increasing to about six per ramp in the afternoon and early evening hours (Table 13).

TABLE 13. TRAILER COUNT DATA : HIGH USE RAMPS

Count Time	<u>Average Number of Trailers Present</u>	
	Weekday Counts	Weekend Counts
8:00 a.m.	3.3	24.7
10:00 a.m.	4.6	31.0
12:00 noon	3.9	19.4
2:00 p.m.	5.7	14.4
4:00 p.m.	5.6	30.6
6:00 p.m.	5.9	30.7
8:00 p.m.	6.1	18.4

The trailer count data show that weekend use of these ramps is clearly much greater than weekday use. Yet, accurate estimations of weekend daily use patterns require a closer

Results of Trailer Counts

look at the data. Further analysis reveals an apparent strong disparity in weekend use of the eight ramps categorized as "high use" and indicates that a more accurate categorization would place just three ramps--Trempealeau, Clinton Street West, and Green Island--into the "high use" category. The remaining five ramps can be categorized as "medium use." Weekend afternoon counts at those three ramps peaked (typically at 4:00 p.m.) at between 20 and 102 trailers and averaged about 60 trailers. In contrast, weekend afternoon counts at the other five ramps ranged between one and 22 trailers and averaged only 11 trailers.

All of the 8:00 and 10:00 a.m. counts were obtained at the three "high use" ramps listed above, and most of the 12:00, 2:00, and 4:00 p.m. trailer counts were obtained at ramps in the "medium use" group. Because of this fact and the disparity in use levels discussed above, the average number of trailers counted in the early afternoon is much lower than the counts conducted earlier and later in the day would lead one to expect. For example, the 8:00 a.m. counts averaged about 25 and the 10:00 a.m. counts about 31 trailers. However, the average number counted at 12:00 and 2:00 p.m. fell to about 19 and 14 trailers, respectively, a result that is inconsistent with observed use patterns.

A more accurate estimation can be achieved if counts obtained at the three "high use" and five "medium use" ramps are separated (Table 14). At the "high use" ramps, the greatest number of trailers were counted at 4:00 p.m. with an average count of about 57 trailers. At the "medium use" ramps, no data are available for 8:00 and 10:00 a.m., but use also appears to peak at 4:00 p.m. with an average of about 11 trailers counted at that time.

TABLE 14. WEEKEND TRAILER COUNT DATA WITH RE-CATEGORIZATION OF HIGH USE RAMPS

Count Time	Average Number of Trailers Present	
	"High Use"	"Medium Use"
8:00 a.m.	24.7	nd ^a
10:00 a.m.	31.0	nd ^a
12:00 noon	40.5	2.6
2:00 p.m.	44.0	7.0
4:00 p.m.	56.7	11.1
6:00 p.m.	39.4	9.0
8:00 p.m.	26.8	4.3

a. No 8:00 or 10:00 a.m. trailer count data were obtained at the ramps re-categorized as "medium use."

Use Levels at "Low Use" Ramps

The number of boats using the ramps categorized as "low use" was observed to be consistently low throughout the day on weekdays with the average count never surpassing three trailers (Table 15). Weekend trailer counts were somewhat higher, but peaked in the early afternoon at a relatively low average of five trailers. It was not unusual for no trailers to be present at low-use ramps during the survey periods, especially on weekdays. The peak (weekend afternoon) average of five trailers is about one-half what was observed at the "medium use" ramps and less than one-tenth of the average count at "high use" ramps.

TABLE 15. TRAILER COUNT DATA : LOW USE RAMPS

Count Time	<u>Average Number of Trailers Present</u>	
	Weekday Counts	Weekend Counts
8:00 a.m.	0.7	3.2
10:00 a.m.	2.7	3.5
12:00 noon	2.3	5.1
2:00 p.m.	1.9	5.2
4:00 p.m.	1.7	4.6
6:00 p.m.	2.3	1.5
8:00 p.m.	1.4	0.3

Estimates of Proportion of Boat Traffic Originating at Public Ramps at Peak Use Times

All but one of the aerial boat counts discussed in the previous chapter of this report were conducted between approximately 1:00 and 4:00 p.m. The intent was to obtain boat traffic data primarily for the busiest times of day on the river during the limited number of flights that would be conducted. Local managers estimated that boat traffic peaked in the mid-afternoon on both weekdays and weekend days, perhaps around 2:00 or 3:00 p.m. The boat trailer count data for these peak-use times can be used, with the aerial count data, to arrive at some approximation of the proportion of boat traffic originating at those times from the ramps.

The highest aerial count of boats on Pools 7 and 8 was 498 boats on Sunday, July 17. However, this count was conducted from 1:20 to 2:40 p.m., somewhat earlier than the apparent peak use of the public launch ramps. A count of 472 boats was recorded about one month later, on Sunday, August 21, between 3:10 and 4:00 p.m. The weather was similar during both counts, with the sky mostly sunny and the temperature about 80° F. These and

Results of Trailer Counts

the other aerial counts suggest that the peak use level for Pools 7 and 8 is about 500 boats and this peak occurs on weekend days around 4:00 p.m.

An estimate that approximately 60% of the peak boat traffic originates at the ramps (i.e., about 300 of the 500 boats) can be arrived at using the 4:00 p.m. trailer count data (Table 16). The origin of the remaining 40% of traffic (200 boats) can be presumed to be marinas and private docks. It is worth noting that an estimate of 200 boats originating from the approximately 1000 marina slips and 800 private docks and boathouses on Pools 7 and 8 implies that only 11% of these boats would be active at peak use times, assuming 100% occupancy of marinas and docks. Counts would need to be conducted at either of these types of access points in order to differentiate the contribution of each to boat traffic. The easiest method to make this determination would be to determine the number of vacant (un-used) marina slips and conduct counts of empty marina slips at peak use times.

TABLE 16. ESTIMATES OF BOAT TRAFFIC ORIGINATING AT PUBLIC LAUNCH RAMPS AT PEAK USE TIMES

	Average Number of Trailers	x	Number of Ramps	=	Estimated Number of Boats
High Use Ramps:	55	x	3	=	165
Medium Use Ramps:	11	x	5	=	55
Low Use Ramps:	5	x	17	=	85
Estimated Ramp Contribution				≈	300
Estimated Marina/Private Dock Contribution				≈	<u>200</u>
Estimated Peak Use				≈	<u>500</u>

These estimates do not account for recreational boat traffic entering Pools 7 and 8 from further up and downriver through Locks 6 and 8. However, data gathered during preliminary boater surveys conducted at those locks indicate that approximately 30% of the recreational boat traffic going through Lock 8, and approximately 37% at Lock 6, originates in Pools 7 or 8. (The results of the preliminary lock user surveys are discussed in more detail in the next chapter of this report.) These data suggest that some of the boats accounted for in the above estimates leave Pools 7 and 8 during their outing, and so would not be included in the aerial counts, but these boats are replaced by others coming in from outside the study area. More information would be needed about daily recreational boat traffic through Locks 6 and 8 in order to make any further determinations about the contribution of boats originating from outside the area to the use of Pools 7 and 8.

5 Results of Preliminary Survey of Lock Users

A preliminary survey was conducted of recreational boaters using Locks 6 and 8, which form the upriver and downriver boundaries, respectively, of the study area. Boaters were handed a one-half page questionnaire card (see Appendix F) to fill out while they were in the lock chamber. Two-hundred cards were distributed at each lock, all but a few of which were returned.

The primary purpose was to obtain the names and addresses of boaters using Pools 7 and 8 whose boat trips originated in other pools and who were coming into the study area through the locks. The names and addresses provided were then used to conduct a more in-depth mail survey using a questionnaire similar to those sent to Pool 7 and 8 dock owners and marina boaters. (See Appendix B for further discussion of survey sampling methods.) The intent was to maximize the inclusiveness of the boater survey portion of the study by including as many "access groups" as was practical. Along with names and addresses (requested only from boaters who access the river outside Pools 7 and 8), information was sought about lock users' "home pool" and their frequency of use of the river and the locks.

In order to minimize the burden on lock personnel, who were being asked to distribute and collect the surveys, and to leave time to conduct the mail survey, the preliminary surveys were conducted only during a two-week period in early July. This resulted in a more limited sample than that obtained during the season-long ramp user exit interview schedule, or the marina boater and dock owner mail surveys, which used extensive mailing lists. Because of this limitation, the preliminary survey data are presented here only as an "indicator sample." However, the results can provide some indication of the characteristics of the recreational boat traffic passing through the locks and the contribution of that traffic to the recreational use of Pools 7 and 8.

Origin of Boats Using Locks 6 and 8

At both Lock 6 and Lock 8, the majority of boaters contacted had accessed the river outside of Pools 7 and 8, placing them within the target population for the lock user survey. Every pool between and including Pools 2 and 13 was represented as a point of origin (Table 17). Boaters were contacted from as far upriver as Pool 1 and as far downriver as Pool 25. At Lock 6, approximately 54% of the boaters passing through were from further upriver (Pools 1 through 6) with the greatest number originating in Pools 3 and 4. Of the remaining 46%, approximately 37% were from Pools 7 or 8 while only 9% came from Pool 9 or further downriver. A similar, but inverted, pattern was observed at Lock 8, with about 58% of those passing through coming from further downriver, primarily from Pools 9 and 10. Thirty percent came from Pools 7 and 8 while only 11% originated in Pools 1 through 6.

TABLE 17. ORIGIN OF BOATS USING LOCKS 6 AND 8

Pool of Origin	<u>Lock 6</u>		<u>Lock 8</u>	
	Freq.	%	Freq.	%
1	0	0	2	1.0
2	13	6.7	1	0.5
3	29	14.9	6	3.0
4	28	14.4	4	2.0
5	10	5.1	1	0.5
6	25	12.8	7	3.6
** LOCK 6 **				
7	33	16.9	24	12.2
8	39	20.0	35	17.8
** LOCK 8 **				
9	5	2.6	34	17.3
10	4	2.1	36	18.3
11	3	1.5	26	13.2
12	1	0.5	12	6.1
13+	1	0.5	7	3.6
nd	4	2.1	2	1.0

Frequency of Use of the River and of Locks 6 and 8

Boaters were asked choose from among four statements to characterize how often they boat on the river and how often they use the lock where they were contacted. The results indicate that the majority of lock users are frequent users of the river, boating on the river "every week" or "at least a couple of times a month," but most only "occasionally" or "rarely" use the locks (Table 18). Less than 30% of the boaters contacted said they use the lock where they were contacted "every time" or "most times" they boat on the river.

These results suggest that boat traffic coming through the locks may not have a great impact on the amount of boat traffic on Pools 7 and 8. Although 1992 data (the most recent annual figures available) show that more than 12,000 recreational watercraft passed through Lock 6, and more than 8,400 passed through Lock 8 that year, the survey data suggests that 30 to 40% are boaters who access the river from within Pools 7 or 8. Of course, boats passing through a lock generally return travelling in the opposite direction (often on the same day), and so are counted twice. Furthermore, most of those coming into the study area from other pools reported doing so only "occasionally" or "rarely." (Subsequent mail survey data from lock users showing that only 30% count Pools 7 or 8 among those they most frequently use concurs with this.) If the lock traffic is well distributed throughout much of the year

TABLE 18. LOCK USERS' FREQUENCY OF USE OF THE RIVER AND THE LOCKS

	<u>Lock 6</u>		<u>Lock 8</u>	
	Freq.	%	Freq.	%
<u>Use of River</u>				
"Every week"	96	49.2	110	55.8
"At least a couple of times a month"	30	15.4	27	13.7
"Once a month"	12	6.2	11	5.6
"Just a few time (or less) each year"	56	28.7	48	24.4
no data	1	0.5	1	0.5
<u>Use of Lock</u>				
"Every time I boat on the river"	26	13.3	26	13.2
"Most times I boat on the river"	30	15.4	30	15.2
"Occasionally"	88	45.1	84	42.6
"Rarely"	51	26.2	56	28.4
no data	0	0	1	0.5

(the Corps of Engineers St. Paul District maintains daily and monthly recreational lockage records which were not reviewed for this study) the impact on Pools 7 and 8 traffic on any particular day may not be large.

Although 70% of the boaters contacted at Lock 8 and 63% of those contacted at Lock 6 were from outside the study area, many did not give their name or address or gave only partial addresses. (Revisions have been made to the survey card to improve responses in future applications.) After additional effort to get complete addresses using phone books and directory assistance, a total of 172 complete names and addresses were compiled; 73 from Lock 6 contacts and 99 from Lock 8 contacts. All 172 were sent full-length mail-back questionnaires about their use of Pools 7 and 8.

6 Discussion and Data Application

Prior to preparation of the final draft of this report, RWG members attended presentations focusing on the study data, participated in discussion of the results, and reviewed a working draft. Written comments were subsequently provided to those responsible for preparing this report. Their comments on the aspects of the data and analysis of most importance to them and on the management implications they expected to be able to draw from this report have largely guided the content and form of this chapter.

This discussion will begin with an evaluation of the study *as a pilot test* by addressing two basic questions: (1) was the pilot test successful and (2) what are the prospects for successful application of similar methods on other parts of the Mississippi and other rivers encompassed within the River Resources Forum's management guidance mission?

Pilot Test Results

The survey methods used during this study were successful in obtaining a wide-variety of baseline information about the boaters accessing the Mississippi River within Pools 7 and 8. A rich pool of data now exists that describes their boating activity on those pools and their perceptions and preferences regarding the conditions that most affect their use and enjoyment of the river. The sampling procedures used, based on thorough identification of all possible boat access points, permitted a comprehensive survey that included a close approximation of the full spectrum of boater types using the river during the summer boating season.

Although a nearly inexhaustible series of analyses can be done on the descriptive and qualitative perception data from the surveys, we have chosen to present data in this report in the form of averages and grouped responses. We believe this allows the most immediate and accessible presentation of the data and is sufficient to expand understanding of current conditions to support a discussion among agencies and with the public about management directions and options. The survey data, provided to the RWG in the form of dBase™ database files, is available for any further analysis and reporting which may be desired.

Gaps may exist in the survey data; for example, boaters using non-powered craft may be under-represented because they may access the river from private property or unofficial access points. Of course, boaters who use the river only in the spring or fall months are not represented. Additional data needs are addressed in following sections.

Low-cost, practical methods were used in the use estimation portion of the pilot test. The aerial count methods used are subject to a relatively high level of human error. However, the intent was to provide "ballpark" figures with the understanding that greater

precision is attainable but at an exponentially higher cost. We have learned from managers in similar water-based recreation situations that the extra effort required to read traffic meters or conduct other time-consuming count procedures to achieve greater precision is not justified by the uses of the data. The aerial overflights permitted data to be collected for the first time on the distribution and relative amounts of boat traffic in specific areas over the full width of the study area, including backwaters.

We believe the success of this pilot test demonstrates the potential for these methods to be used, with the modifications developed from this effort, on other portions of the Upper Mississippi system. Continued progress in attaining use pattern and user perception data is a central part of the effort to move towards the goals of system-wide data collection and management. The opportunity also exists for future monitoring on Pools 7 and 8 with a less extensive application of the methods employed in 1994. Monitoring would allow tracking of trends in use patterns and perceptions of conditions.

Baseline Data-Gathering Results

The following section of this discussion will focus on providing concise summaries of the survey data on the characteristics of boaters and their boating activity on Pools 7 and 8, the immediate problems boaters perceive to be impacting the river and their enjoyment of it, and boaters' desires for future conditions on the river.

The principal fact that should be apparent throughout this review is that *there is no typical Pool 7 and 8 boater*. Indeed, strong contrasts appear in nearly every facet of boating activity and perceptions of conditions between ramp users and dock owners, who share many characteristics and interests, and marina boaters and those coming into the study area through the locks.

Another important characteristic of the data that should be evident is the overlap and close agreement between different parts of the survey data. For example, considering only users of public ramps, we see 1) the prominence of fishing boats and fishing activity, 2) the characteristic of "good fishing" as the paramount feature of their favorite locations, 3) a perceived decline in the quality of fishing as the most prominent change they have noticed, and 4) a loss of fishing enjoyment and a drop in fishing activity due to these and other changes. Similar threads run throughout the data, enhancing its credibility.

The Boaters Using Pools 7 and 8 and their Boating Activity

Overall, the boaters using Pools 7 and 8 have substantial experience on the area. A majority have at least a decade of use behind them. Yet, over 20% of several of the boater groups contacted have five years or less experience on Pools 7 and 8, attesting to the continued growth in boating on the river.

Frequent use of Pools 7 and 8 is the norm, except among lock users. This is especially true among dock owners and marina boaters who averaged three time as many days on Pools 7 and 8 per year as ramp users. Overall, these visits are fairly evenly split between weekdays and weekends, and most are single-day visits. The minority participating in longer visits typically stay one or two nights at a beach site.

Most of Pools 7 and 8 boaters' boating activity occurs on the study area, although many boat on other Mississippi River pools (particularly the adjacent pools) as well as on other rivers and on lakes. Boating use of Pools 7 and 8 is primarily local with a strong majority of boaters living within 10 miles of their usual access point (ramp, marina, dock, or boathouse).

Fishing boats dominate use at the ramps and at private docks, though runabouts, ski boats and pontoon boats are also common. The typical fishing boat is 15 or 16 feet in length and carries a 35 to 50 hp motor. The typical runabout on the river is 17 to 20 feet in length with a 100 to 200 hp motor. The majority of boats at marinas are large cabin cruisers and houseboats, though runabouts are also frequently used. The cabin cruisers and houseboats are typically 25 to 50 feet long and often have more than one motor, with 300 or more combined horsepower.

Fishing is a prominent activity among ramp users and dock owners and their use of the river is often devoted in large part or entirely to that one activity. Fishing is much less important among the other boaters. Cruising is important to many boaters in all groups and dominates marina boaters' and lock users' activity. Use of the beaches on the river is also popular across all boater groups, but is an especially large component of marina boaters and lock users activity.

Although the majority of all boaters spend time on the main channel, *ramp users and dock owners as a group spend most of their time in backwater areas or on the Black River. Some marina boaters and lock users also use the backwaters and the Black River but, overall, most of their boating activity occurs on the main channel.*

Conditions Boaters Desire on Pools 7 and 8

Ramp users and dock owners are most interested in enjoying places on the river that offer good fishing conditions (not necessarily a lot of fish!) and the opportunity for at least relative solitude and freedom from active boat traffic. They find these conditions at many backwater locations within Pools 7 and 8 and on the upper Black River. Others (i.e., non-fishermen) are more interested in good beaches or good shallows for swimming and these are typically found on the main or sometimes on side channels.

Marina boaters greatest interest, and that of lock users, is in finding good beaches and places to swim, sunbathe, and relax in the boat. Some share the previously discussed boaters' desire to escape areas with heavy boat traffic. They find these conditions primarily on the

main channel or accessible side channels. The lock users, who are often on multi-pool cruises, in addition have a strong interest in having marina and fuel services available.

Though many Pool 7 and 8 boaters also boat other places, *the basic attribute of closeness and convenience makes the study area preferable to other places*, especially to those trailering a boat to public ramps, and figures prominently in their ideas about what is unique about those pools. However, the survey data shows that the *scenery, wildlife, good beaches and good fishing opportunities* that are characteristic of the study area or of equal or more importance to many boaters.

Problem Conditions of Most Concern to Boaters on Pools 7 and 8

A majority of the boaters using Pools 7 and 8 deliberately avoid certain areas where they have encountered conditions detrimental to the recreation experience they are seeking. The survey data established that *boaters most frequently avoided all or part of the main channel on Pool 8, especially in the La Crosse area*, and that they were *most often avoiding the presence of too much boat traffic and the wakes associated with that traffic*. Most of those not avoiding heavy boat traffic were avoiding shallow areas, obstructions (stumps in backwaters and wingdams on the main channel), or strong currents.

Survey information about the changes boaters have noticed on Pools 7 and 8 suggests that *the most commonly avoided conditions, heavy boat traffic and shallow waters*, are conditions that *have become more widespread in recent years*. These changes, along with a perceived decline in the quality of fishing and deterioration of beaches, make up a majority of the changes boaters have noticed to have occurred on Pools 7 and 8 in the last five years.¹

The survey data also confirms that *these mostly negative changes in conditions are having negative effects on boaters' use and enjoyment of Pools 7 and 8*. The greatest portion of boaters who noticed changes said those changes were causing their boating or fishing to be less enjoyable. Many also reported that they are using the river less or finding it necessary to change their river activities or the days and times they use the river.

Changes and Improvements Desired by Pool 7 and 8 Boaters

The changes boaters would like to see on Pools 7 and 8 is related to the data just reviewed on desired conditions and the problem conditions they have encountered. The survey data demonstrates that good opportunities for fishing and good beaches were of primary importance to various groups of boaters. The data also provided evidence that

¹Some boaters, especially lock users, observed positive changes - such as improved water quality, beaches, and public facilities - and other changes whose effect may be neither or both positive and/or negative. However, these generally were much less prominent in the survey data than the negative changes in resource and social conditions mentioned.

boaters are most concerned about increased boat traffic, sedimentation of backwaters, deterioration of beaches and a decline in the quality of fishing. The majority of boaters' requests for changes parallel these interests and concerns in that they are aimed at enhancing the conditions they most desire and alleviating the effects of the changes which they consider undesirable.

The most frequent requests aimed at improving resource conditions include requests for *more dredging in backwaters and control of siltation and erosion, improvements to existing beaches and additional beaches, and improvements to the fishery*. The most prominent requests aimed at improving social conditions include *increased river patrol and expanded boater education* to improve boaters' compliance with regulations and observation of boater courtesies.

Boater Conflicts and Safety on Pools 7 and 8

In addition to the generally negative effects that changes such as more boat traffic, more large boats, and more crowding have had on their boating, boaters described specific conflicts they experienced with other boaters and with commercial traffic.

*Few ramp users, but nearly one of every three dock owners and one of every five marina boaters reported conflicts.*² Accurate categorization of the conflicts based on the descriptions given proved difficult, but behaviors broadly categorized as "discourteous" (e.g., boaters causing large wakes too near other boats) and other categorized as "unsafe" or illegal (e.g., boaters coming close at high speed or ignoring no-wake zones) were reported.

Although recreational boat lockages are increasing and concerns have been raised about safety, *few boaters reported any problems with tows*. The largest number of complaints were about long waits to lock through while only a handful of boaters mentioned large wakes or other safety concerns. In fact, there were more concerns voiced about the impacts of commercial traffic on the shoreline and the river than any safety issues.

A minority of boaters reported accidents or safety hazards they had observed or experienced on the river and most were the same types of unsafe boating behavior they had previously listed as instances of boating conflicts. However, boaters more often mentioned here behaviors such as "boats passing too close and causing large wake" that may have threatened *other* boaters' rather than *their* safety. Only a few individuals mentioned physical hazards, most of which were common river hazards such as submerged stumps or logs and sandbars.

² Although ramp users were asked to list conflicts that occurred the day they were interviewed and the other boaters were asked to report conflicts that occurred the last day they boated, the fact that many more dock owner and marina boaters reported conflicts and the nature of their responses leads to the conclusion that many were responding in reference to visits prior to their most recent visit. Heightened sensitivity and their more frequent use may have also contributed to the greater number of conflicts reported.

Changes Occurring in River Use and Satisfaction Related to Changes in the River Ecosystem

The agencies who manage the Upper Mississippi River have long been aware that siltation and filling in of backwaters is one of the most pervasive changes occurring to the river ecosystem. In addition, the CRMP Plan of Study lists loss of access to backwater areas due to sedimentation as a issue of concern (p. 12). *The boater survey established sedimentation as an issue of concern among Pool 7 and 8 boaters* as it was dock owners' second most frequent and ramp users third most frequent change mentioned. Other frequently mentioned changes, including a *decline in fishing quality* (#1 among ramp user and #3 among dock owners) and *beach deterioration* (#2 among marina boaters and #4 among dock owners), are also related to river ecosystem changes and may be associated with the siltation problem.

This study established that these changes in the river ecosystem, along with changes in the amount and types of boat traffic, have led to a decrease in boater satisfaction.

Specifically, boaters have reported that their fishing is less enjoyable and some are fishing less as a result. Others remarked that their general recreational boating is less enjoyable or that they are using the river less.

Boaters' Expectations and Preferences Regarding Use Levels on Pools 7 and 8

The majority of Pools 7 and 8 boaters saw "about as many" boats on the river during their last outing as they expected, a result typical of areas that primarily receive local use by visitors familiar with conditions. However, between 25 and 40% of each boater group said they saw fewer boats than they expected, which may signify somewhat reduced use levels in 1994. The fact that *many boaters reported increased boat traffic, crowding and conflicts even though 85% or more of each group saw as many or fewer boats than they expected* indicates that use levels greater than what boaters expected were not a major contributor to perceptions of crowding and justifies giving increased attention to crowding concerns.

Although *the number of boats on Pools 7 and 8* did not exceed most boaters' expectations, it *did exceed from one-quarter to nearly one-half of each groups' preference* for number of boats. These proportions of boaters preferring to encounter fewer boats on the river would have added significance if counts in future years suggest that use was depressed during the study.

Potential Uses of the Data

The CRMP Plan of Study provided a compilation of important public river recreation issues and concerns gleaned from nine river plans and studies originating as long ago as the mid-1970's. Specific issue statements, each placed within several broad categories and applying to the entire CRMP study area, are listed with a call for "refinement of the issues to provide additional clarity and geographical reference, and judgements related to the importance, impact, and need for action." The survey and aerial count data provides

considerable information about many of the issues listed, especially in the categories of "Recreational Opportunities and Enhancement" and "User Attitudes and Conflicts," and allows substantial progress towards the needed refinement and understanding of these issues.

With specific data now available about many of the most critical recreation issues on Pools 7 and 8, **the basis has been provided for discussion with the public** toward planning for desired future conditions. Continued public involvement can occur with less danger of discussion becoming bogged down in opinions and conjecture regarding current recreation activities and problems.

Management of the river is exceedingly complex in its requirement to meet sometimes conflicting commercial navigation, wildlife and recreation needs and in the constant changes occurring in physical and social conditions. **Management actions** designed to meet those diverse needs and to respond to physical and social changes **can be evaluated as to their effects on the recreation opportunities and experiences** that the managing agencies are intending to be provide and protect. Returning to Schreyer (1987), the question could be asked regarding each proposed management action "What effect will this action have on the recreation opportunities the river provides and will those effects hinder or facilitate boaters attainment of their desired experiences?"

The data can also serve to prioritize immediate problems, some of which might be acted upon before any further planning steps are taken. For example, the data could support immediate increase in resources for recreational boating regulation enforcement. The potential exists to increase boaters' tolerance of greater numbers of boats on the river and increase "social carrying capacity" if the unsafe and discourteous behaviors exacerbated by higher density conditions can be reduced through increased boater awareness and regulation enforcement. Also, concerns about loss of recreational beaches at dredge disposal sites to erosion might be addressed during near-future dredging operations, and requests for relatively minor improvement to public launching facilities (e.g., repairs to damaged docks and provision of better lighting) might be met.

Implications of the Data for Maintaining Quality Recreation on Pools 7 and 8

Much has been learned during this study about the extent of boaters' experience on Pools 7 and 8 and about how frequently they use the river. These are factors in how boaters react to changes they see occurring on the river and in what they perceive to be quality recreation opportunities.

The prevalence of boaters with more than ten years experience and the presence of significant numbers of those with more than 20 years of Pools 7 and 8 use increases the demand for a return to historical conditions. Fifteen or 20 years ago, these boaters were likely to encounter fewer other boats on the river and they would have seen fewer large boats

and no personal watercraft. Resource conditions would have been somewhat different too, especially in backwater areas. For example, some areas may have had more islands, deeper water, or perhaps different amount of aquatic vegetation. It is from this reference point that these boaters define quality boating for Pools 7 and 8. Goals for ecosystem restoration work currently underway on the Upper Mississippi will likely enhance the psychological restoration of boating quality as conditions improve, especially for experienced users.

On the other hand, relative new-comers (i.e., those with less than five years of boating on Pools 7 and 8) may accept higher density conditions and more frequent conflicts in that they do not have a reference point based on conditions in previous years (Schreyer et al. 1976, Vaske et al. 1980). As these boaters become a larger part of the boating population, and more "old-timers" stop using the river (59 dock owners who received the survey indicated they no longer boat on the river), complaints about crowding and conflicts may decrease. However, this should not be interpreted as a decrease in the occurrence of conflicts or a lessening of the need to provide lower density boating opportunities. These lower-density conditions will remain important to most fishermen and to other boaters preferring some measure of solitude and peace on the water.

The frequency of the mostly local boaters' use of the river displayed in the data, and the prominence of Pools 7 and 8 in their water-based recreation, implies that boaters are likely to be strongly impacted by any changes that diminish the quality of their recreation on the river. Though many boaters also boat elsewhere, Pools 7 and 8 is often where most of their boating occurs.

In a general sense, boaters' activities on Pools 7 and 8 can be divided into two parts; (1) fishing activity and (2) cruising and other pleasure boater activities. This way of looking at boater activities is supported by several aspects of the data. Within the two groups where most fishing activity is found, ramp users and dock owners, those who fished typically spent all or most of their time on that one activity. In contrast, pleasure boaters may have spent 40 to 60% of their time cruising but also typically spent time on several other activities such as beach use, swimming, sunning, or waterskiing (and perhaps even a little fishing). For these reasons, and the fact that fishing was the most often participated in activity among ramp users and the second most often participated in activity among dock owners, after cruising, it makes sense to discuss quality recreation for fishermen and fishing as an activity separate from other types of users and other types of boating activity.

This single-activity focus of fishermen could mean that the quality of their recreation on the river is more tenuous. That is, threats identified in this study are less likely to be tolerated by fishermen than by those who engage in multiple activities. Pleasure boaters' division of their time over several activities means that they are less vulnerable to changes that may impact one of those activities. For them, if the fishing experience deteriorates, they can more easily place more focus on beach use or cruising and so adjust to the change in conditions. In contrast, a boater who is interested primarily in fishing is going to be more severely impacted if conditions change such that the quality of fishing opportunities deteriorate.

Another reason to give special attention to fishing is that good fishing conditions generally include a lack of moving boat traffic nearby. The density of boats in popular fishing areas (e.g., on the east side of Lake Onalaska) was observed to be quite high during some overflights, but most of these boats were other stationary fishing boats. Yet fishermen's most frequent complaint was that of their enjoyment being diminished by boaters coming too close and causing wakes near to their stationary boat. If continued growth in boat traffic and increases in the use of personal watercraft continue as current trends indicate, fishing as an activity may be disproportionately impacted, especially if these changes lead to increased pleasure boater use of back waters.

The conditions of crowding and congestion appear within the data as a primary threat to quality on Pools 7 and 8. This is a familiar result as these have been identified as a prominent issue at most of the Corps lakes where the survey methods used here were previously applied. However, the nature of boating on the river alters the dimensions of the problem somewhat. The river can perhaps support greater levels of boat traffic safely because their are more defined travel patterns than what is observed on most lakes - upstream traffic generally stays to one side of the river while downstream traffic keeps to the other. But more boats mean that boats are generally passing nearer to each other, increasing the effects of wakes, which are the source of most complaints about increased boat traffic. The linear nature of the river also makes it more difficult to avoid heavy traffic or wakes in some instances. Increased use of the river has also meant more crowding and greater competition for beach sites and complaints about dirty beaches have become common.

Management Actions to Improve Quality of Recreation

The survey data as a whole supports management actions to protect the conditions necessary for certain types of recreation experiences. The experiences boaters are seeking and the threats they perceive to those experiences have been defined. In particular, the data support management actions aimed at:

- 1) Preventing or, at the least, not contributing to significant increases in existing use levels in the congested areas of the Mississippi and Black Rivers near La Crosse,
- 2) Protecting opportunities for enjoyable fishing by discouraging and monitoring incompatible activities in popular backwater fishing areas and continuing to maintain and improve fish habitat through control of backwater flows and sedimentation, dredging, and other means,
- 3) Maintaining existing beaches (dredge material disposal sites) as much as is practical, and restoring beaches lost to erosion during periods of high water,
- 4) Reducing conflicts and increasing safety through increased patrol and boating regulation enforcement, especially on the more heavily trafficked stretch of the main channel between L/D 7 and Brownsville, and on the Black River,

5) Increasing efforts at boater education, with special emphasis on elevating boaters' awareness of the effect of their wakes and other aspects of boating courtesy and etiquette.

Potential Changes in Data Collection Procedures and Additional Data Needed

The exit interview methods used for this study functioned well and no changes are foreseen at this time. However, the high number of boats passed at the three busiest ramps (over 80% of the passes occurred at those ramps) during weekend afternoon interview periods suggests greater efficiency may be achieved by scheduling two interviewers at those ramps at those times and reducing the total number of interview periods. Based on estimates derived from the trailer counts of boat traffic originating at high and low use ramps, the high number of passes did not have the effect of under-representing users of the high use ramps in the sample. The 53% of interviews conducted at those three ramps approximates the estimated 55% of ramp traffic originating at those ramps on weekend afternoons. We suspect the passes at high use ramps on weekends were balanced out by the high number of interviews completed at those ramps on weekdays.

The mail survey procedures also functioned well. A possible change for future studies would be the inclusion of a study area map, similar to that used during exit interviews, on which respondents would mark activity, favorite, avoided, and conflict locations. It would be desirable to obtain this spatial information from all the boaters surveyed rather than just from ramp users. Testing of this type of data acquisition is currently being conducted at several lakes.

Minor changes in the survey instruments would be helpful in eliminating some mismatches in data collection between exit interviews and mail surveys. For example, differences in question wording led to some inconsistency in how the length of overnight boat trips were recorded. Ramp users were not asked to record the number of days they boated at places other than Pools 7 and 8, as were the other survey groups. The list of activities on the mail survey instrument included activities not on the exit interview instrument. Finally, ramp users were asked to record the portion of their time they spent on the main channel, while mail survey respondents recorded time spent on the Black River and backwaters also. While these differences are minor, modifications would facilitate data analysis and reporting.

Additional aerial overflights would be desirable in order to obtain the broadest picture of use levels over the length of a summer boating season and to lessen the effect of extreme high and low counts on use estimation. However, the six weekend and six weekday counts reported here were sufficient to provide the level of accuracy intended. Additional resources for use estimation would be better spent on increasing the number of trailer counts at ramps beyond those conducted concurrent with the exit interview periods.

The additional counts would allow more precise estimations of boat traffic originating at the ramps and would allow estimation of use of individual ramps. The exit interview schedule did not permit more counts to be conducted with the staffing that was available, so the interview schedule would have to be reduced or more staffing arranged to extend the trailer counts. If trailer counts could be conducted concurrent with aerial overflights, more precise estimations of the contribution of the public ramps to overall boat traffic could also be made.

If further information is desired on the proportion of boat traffic originating at marinas and private docks, additional counts of empty slips would need to be conducted at marinas, preferably concurrent with aerial overflights. Estimates for private docks would be easily achieved by deducting the ramp and marina figures from the overflight counts.

The intent of the somewhat labor-intensive survey methods used was to be as comprehensive and inclusive as was practical. The season-long schedule of exit interviews at ramps, the mail surveys of dock owners and marina boaters based on nearly complete population lists, and the effort to include those coming into the study area through the locks leaves few boaters without the opportunity to be included in the survey sample. It may be that users of non-powered boats (e.g., canoeists) were under-sampled because some may use unofficial, walk-down, private or other dispersed access points that are impossible or impractical to include in the exit interview schedule. Their number may fall in the range of 3-4% of boat traffic on the area. The potential exists to explore other methods, such as focus group interviews or surveys of club members, to include more of these individuals in the survey sample.

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Appendix A

Detailed Study Methods

The first step in planning for data collection on Pools 7 and 8 was a two-week reconnaissance visit to the area by the study coordinator 28 August through 6 September, 1993. The reconnaissance consisted of identifying and describing boater access points, including public launch ramps, marinas, and privately owned docks and boathouses, within the two pools. This was accomplished through review of previous inventories of access points in the area performed during previous studies, discussions with resource managers, and extensive field checking and observation. A draft exit interview questionnaire, similar to that used during the study team's previous research at Corps lakes, was also pre-tested at public boat launch ramps. The reconnaissance report and the sampling plan that was subsequently constructed from the reconnaissance information are in Appendix D.

Boater Survey

The boater survey portion of the study was conducted from 28 May (Memorial Day weekend) to 14 August 1994.

Study and Sample Populations

The study population consisted of boaters accessing the Mississippi River within pools 7 and 8. The survey was designed to allow information to be gathered from all boater groups using those pools including those who launch their boat at public launch ramps and those who have a boat moored at a marina or boat club slip or at a private dock or boathouse.

After data collection had begun, an effort was also made to include in the survey sampling boaters who accessed the river above or below pools 7 and 8 but who entered the study area through Lock 6 or Lock 8. Thus, for the purpose of sampling, the boaters were separated into four survey groups by their means of access to the study area: public ramp users, marina/boat club boaters, private dock/boathouse owners, and lock users.

Boaters using public launch ramps were interviewed after they had removed their boat from the water. They were contacted at both larger, heavily used ramps and at smaller, less heavily used ramps. Marina/boat club slip renters, dock/boathouse owners, and lock users were contacted through mail back surveys. Exit interviews were conducted by three student researchers who underwent interviewer training prior to the start of data collection. The students also assisted with the mail surveys. Sampling and data collection were directed by the study coordinator who was placed at the study area several weeks prior to the start of data collection.

Inventory of Boater Access Points

A thorough inventory of all public ramps, marinas, boat clubs, and resorts with dock or launch facilities was completed during the reconnaissance phase in the late summer of 1993 as the first step towards establishing a sampling plan. Public ramps were located and categorized based on information contained in Mississippi River Area Office records and maps, inventories contained in previous studies (e.g., *The Economic Impact of Recreation on the Mississippi River Study* completed in 1993), and through field checks. Resorts and marinas were also visited in order to make observations about the facilities provided and to establish the location of and road access to the sites. Lists and descriptions of launch ramps, resorts and marinas/boat clubs within the study area are found in Appendix D.

Launch Ramps

To ensure representation of the full range of boaters using launch ramps, a stratified random sampling procedure, with boat ramp interview sites split into two stratum, was used in scheduling the exit interview periods. An assumption was made that the types of boaters using the larger, busier public ramps would differ, as a group, from those using smaller, less busy ramps. The most significant expected difference was the presence of a greater proportion of small and perhaps non-powered craft and fishing boats at the smaller ramps. The larger ramps were designed and presumed to serve those with larger boats and a greater proportion of pleasure boats¹.

A total of 32 ramps were identified during reconnaissance. The ramps were tentatively categorized as "high," "medium," and "low use" based on previous inventory reports and observation. In May, 1994, prior to the start of data collection, additional observations and discussions with Ranger Jerry Lee of the Mississippi River Area Office were used to eliminate from the list four ramps that received very little public use, and to categorize the remainder into two groups: eight larger, heavily-used ramps and 17 smaller, less-used ramps.

The larger ramps typically have two or four concrete lanes, a courtesy dock, and 50 to 100-trailer, paved parking areas. Depending on the location and depth of the water, these ramps serve pleasure boats (including some cabin cruisers and large runabouts) and fishing boats. The smaller ramps typically have one or two-lane asphalt or concrete ramps with unpaved parking for ten to perhaps 30 trailers. They are used primarily by smaller fishing boats.

¹Analysis of the ramp user interview data supports these assumptions. The proportion of boaters using fishing boats was 82% at the "low use" ramps as compared to 51% at the "high use" ramps. Boats launched at "low use" ramps also averaged about one foot shorter in length due to the greater number of typically smaller fishing boats.

Marinas/Boat Clubs

All 23 marinas, boat clubs, liveries, and small resorts serving pools 7 and 8 were visited to document the size of each operation. Three of these are small resorts in the Brice Prairie area on the north shore of Lake Onalaska with a few cabins or motel rooms, small boat rentals, and perhaps a ramp. Six are small livery operations with a few fishing boats for rent and a small ramp. The remaining 12 (Table A-2) are marinas (plus one small motel) with 30 to 230 slips. (Some marinas have "boat club" or "yacht club" in their name. Although these may have membership rolls they are, for sampling purposes, regarded as identical to the other marinas. In this report, all are referred to as "marinas" regardless of the name used.)

Marina mail surveys were limited to the 12 primary marinas listed in Table A-1. These 12 marinas comprise over 1,050 boat slips. (The marina list was pared to 11 when Sandbar Marina ceased operation in the spring of 1994.) Letters requesting lists of slip renters or boat club members and signed by the Corps of Engineers' Area Manager were sent to each marina. Eight of the marinas provided the requested lists, containing a total of 739 names.

TABLE A-1. MARINA INVENTORY: POOLS 7 AND 8

Marina	Approx. No. of Slips ^a	Boat Rentals	Launch Ramp
La Crosse Sailing Club	49		
Black's Cove Marina	38	✓	✓
R & R Marine	42	✓	✓
Beacon Bay Marina	166	✓	✓
French Island Yacht Club	37		
Bikini Yacht Club	165	✓	
Pettibone Boat Club	230	✓	✓
La Crosse Municipal Harbor	190	✓	✓
Chut's Boat Landing	40	✓	
Water's Edge Motel	45	✓	
Sandbar Marina	30	✓	
Lawrence Lake Marina	35	✓	✓

a. Slip numbers are based on 1991 inventory documents and marina diagrams used for counts of boats at marinas in Sep. 1993.

Some of the marinas apparently have unrented slips, as numerous vacant slips were observed at several of the marinas during reconnaissance, and the lists of slip renters provided by the marinas in some cases contained substantially fewer names than the number of slips present.

Although several attempts were made, the requested lists of slip renters were not obtained from the three smallest marinas, Blacks' Cove, R & R, and Waters' Edge Motel, and they were not included in the sample. These marinas were observed to have low occupancy during reconnaissance and during the study period. A slip renter at R & R marina indicated that marina was being sold to the adjacent hotel which was going to use the space for additional transient slips. Chuts' Boat Landing provided a list of 36 names, though approximately 100 slips were observed during reconnaissance. An attempt was made to obtain a more complete list and when this was unsuccessful, the marina was dropped from the survey.

Private Docks and Boathouses. During the reconnaissance, concentrations of docks and boat houses were observed at several shoreline areas within Pools 7 and 8. In early June, 1994, after launch ramp exit interviews had begun, attention was turned towards further defining those areas and obtaining the names and addresses of the dock and boathouse owners in each area.

In areas where docks and boat houses were on public property and under permit, the names of the owners were available from Corps of Engineers, US Fish and Wildlife Service, City of LaCrosse or Onalaska Township records. For the remainder, constructing the mailing list was a three-step process;

Step 1. Determine which residences have a dock or boathouse on the shoreline through on-shore or water-borne observation.

Step 2. Determine the address of those residences from mailboxes or numbers affixed to the residence.

Step 3. Determine the name of the homeowner through city registers (available at the public library), telephone books, or County tax office records.

As shown in Table A-2, a total of 814 names and/or addresses of dock and boathouse owners in nine shoreline areas were obtained. In instances where the name was not obtained, "current resident" was substituted on the mailing list. The owners of a few additional docks and boat houses near Dresbach and other scattered locations were not included on the mailing list. Also, a few apartment and condominium residents with boat slips within the Black River and South La Crosse areas were not included after unsuccessful attempts to obtain their names from their apartment managers or condo associations.

Sampling Methods

Two different sampling methods were used to contact ramp users and boaters with docks, boathouses, and marina slips. The public ramp users were contacted during 78 randomly selected, four-hour long interview periods. All other boaters were contacted through a mail survey, with 50 percent of the persons on the mailing lists (every other name) selected to receive a questionnaire.

TABLE A-2. PRIVATE DOCK AND BOATHOUSE OWNERS; POOLS 7 AND 8

Shoreline Area	Shoreline Ownership	Docks and Boathouses
Trempealeau Lakes	USACE, Private	40
Richmond Island	Private	25
Lake Onalaska	USACE, Onalaska Township ^a	152
Black River	City of La Crosse, Private	276
French Lake	Private	24
Shore Acres	Private	52
South La Crosse	City of La Crosse, Private	89
Stoddard	USACE	23
Lawrence Lake/Brownsville	USACE, USFWS, Private	<u>133</u>
		814

a. Onalaska Township leases shoreline from USACE

Exit Interview Schedule

The days on which exit interviews would be conducted at the ramps were selected by numbering the 26 "peak days" (weekends and holidays) and the 53 weekdays available during the data collection period of May 28 to August 14, 1994. Thirty weekend days and 45 weekdays on which interview periods would be scheduled were then randomly selected by drawing numbers.

The numbers chosen were inserted into a three-part matrix with a cell designated for morning (8:00 a.m. to 12:00 noon), afternoon (12:00 noon to 4:00 p.m.), and evening (4:00 to 8:00 p.m.) interview periods (Figure A-1). This procedure was repeated four times: once each for weekends and weekdays, for both large and small ramps. The 30 weekend interview periods were evenly divided (five periods each) between small and large ramps and morning, afternoon, and evening interview periods. The 45 weekday periods were weighted slightly toward the larger, busier ramps with 24 periods (eight morning, afternoon, and evening) at those ramps versus 21 at the smaller ramps (seven morning, afternoon, and evening).

Large/High Use Ramps			
	Morning	Afternoon	Evening
Weekday	(8)	(8)	(8)
Weekend	(5)	(5)	(5)

Small/Low Use Ramps			
	Morning	Afternoon	Evening
Weekday	(7)	(7)	(7)
Weekend	(5)	(5)	(5)

Schedule Summary

High-use ramps - weekdays:	24 interview periods
High-use ramps - weekends:	15 interview periods
Low-use ramps - weekdays:	21 interview periods
Low-use ramps - weekends:	<u>15 interview periods</u>
Total:	75 interview periods

Figure A-1. Exit Interview Period Scheduling Matrices.

After the date and the time slot for each of the 75 exit interview periods were chosen, the ramp locations were chosen by assigning numbers to the eight large and 17 smaller ramps and drawing numbers to make the selections.

A restriction was implemented such that none of the smaller ramps would be scheduled more than once within the same day-of-the-week category (peak day or weekday) and within the same time period (morning, afternoon, or evening). Also, a restriction was placed on the scheduling of interview periods at the larger ramps on weekdays such that interviewing would not occur twice during the same time period on a weekday. This meant that each of the eight high-use ramps were scheduled once during each time period on weekdays (8 ramps x 3 time periods = 24). All of the high-use and all but one of the low-use ramps (Pettibone Park) in the sample pool appeared on the schedule.

Some changes were made to the exit interview schedule as data collection proceeded. After the first week of interviewing had been completed, it was recognized that use was low at the Brice Prairie ramp, which had been placed in the high-use stratum, and use was high at the Wildcat Park ramp, which had been placed in the low-use stratum. These two locations were switched on the remainder of the schedule.

An interview period was added for the evening of July 4th when it was realized that no interview periods were scheduled during the three-day holiday weekend at high-use ramps in the afternoon or evening. Two evening interview periods at high-use ramps were also added to the schedule near the end of the survey period when it was realized that a relatively lower proportion of boaters using those ramps were being interviewed. This was because a much higher proportion of exiting boats were being passed and not interviewed (20 vs. 40 percent) at the busier high-use ramps. Another reason for these additions was that no evening interview periods at high-use ramps appeared on the schedule the final four weekends of the survey period. This became a concern when it was found that the greatest number of boats were exiting at the ramps during the evening interview periods, and take-outs were relatively few during the morning and afternoon periods. The exit interview schedule which resulted from these changes thus contained 78 interview periods (Appendix E).

A slight digression from the exit interview schedule occurred when the interviewer at one of the low-use ramps conducted interviews at another nearby low-use ramp in addition to the scheduled location when it became clear that no boats were likely to exit at the original site. Since the number of opportunities for interviews appeared to be limited at many of the lower-use ramps, it was decided that the additional interviews conducted at the unscheduled site would be included in the survey data set.

Mail-back Survey

Questionnaires accompanied by a cover letter and a postage-paid return envelope were sent to the selected boaters with private boat docks and boat houses and who rent slips at the marinas. Dillman's "Total Design Method" for mail surveys was used (1978). The first

questionnaires were mailed in mid-July, with the expectation that most boaters intending to boat on Pools 7 and 8 in 1994 would have done so and could respond to the survey having had recent experience with boating conditions on the river. One week after the initial mailings, reminder postcards were sent out. After two weeks, a replacement questionnaire and letter was sent to non-respondents.

A total of 700 usable names and addresses of renters were compiled for the seven marinas in the final sample pool. Three-hundred and fifty (50 percent) of those persons (every other name on the mailing lists) were sent questionnaires. Similarly, questionnaires were sent to 410 of 814, or every other, dock and boat house owner in the nine shoreline areas listed in Table A-2.

Lock User Survey

Boaters accessing Pools 7 and 8 through the locks at either end of the study area (L/D 6 and 8) were identified through a brief preliminary survey. Lock attendants at both locks distributed half-page survey cards (Appendix F) to pleasure boaters as they locked into the study area in late June and early July. The boaters were asked in which pool of the river their trip originated, how often they boat on the Mississippi, how often they use the lock they were presently in, and, if their boat trip had originated outside Pools 7 or 8, their name and address. The cards were retrieved by the attendants before the boaters departed the lock. Nearly two-hundred cards were distributed and returned at each lock.

About 63 percent of the boaters contacted at L/D 6 and about 70 percent of those contacted at L/D 8 were from outside the study area. They had originated from as far upstream as Pool 1 and as far downstream as Pool 25. About two-thirds of those boaters gave their names and usable addresses. A total of 172 lock users were sent full-length questionnaires, 73 contacted at L/D 6 and 99 contacted at L/D 8. More detailed discussion of the preliminary survey data, including the frequency of lock users use of the river and the locks, is provided in the main body of the report under Lock Use Data from Preliminary Survey.

The Survey Instruments

One area of emphasis during the carrying capacity studies conducted at Corps lakes is the development of explicit and low-cost procedures to inventory existing conditions. An important aspect of this has been the development of a short set of questions to ask visitors about their perceptions of "quality" conditions on the area. This set of questions has been used at several areas supporting land-based and river-based recreation and were used during the previous pilot tests at smaller Corps lakes. Information is obtained about visitor and visit characteristics, how the study area compares to other similar areas in the region, visitors perceptions and preferences for use levels and perceptions of conflicts, and changes occurring (Figure A-2).

I. Visitor and Visit Characteristics

- Length of experience on Pools 7 and 8
- Distance travel to Pools 7 and 8
- Frequency of visits
- Length of present visit (ramp users)
- Type(s) of watercraft used
- Activities participated in
- Portion of recreation day devoted to specific activities

II. Spatial Use Characteristics (with river map)

- Locations where activities were participated in
- Characteristics and location of favorite places
- Characteristics and location of avoided areas

III. Comparison to Other Areas

- Alternative boating locations
- Reasons for choosing Pools 7 and 8
- Best features of Pools 7 and 8

IV. Changes Occurring and Desired

- Changes noticed and effect of those changes
- Changes desired

V. Perceptions of Use Levels and Conflicts

- Number of boats expected to see while boating on Pools 7 and 8
- Number of boats preferred to see while boating on Pools 7 and 8
- Problems/conflicts with other boaters

VI. Additional Comments

- General comments, suggestions, continuation of responses to open-ended questions, or comments on issues not covered

Figure A-2. Management information sought with survey instruments.

The questions have been kept short and easy to administer and tabulate, features which are in keeping with the manager-oriented, low-cost approach that has been chosen. This set of questions was used as the initial template for the questionnaire to be used during launch ramp exit interviews on Pools 7 and 8. An exit interview questionnaire closely following this model was pretested during the preliminary reconnaissance work in September of 1993. The questionnaire was also reviewed and commented on by RWG members in early 1994.

RWG members requested some additional information be gathered during the boater survey regarding the amount of time boaters spend in the main channel of the river, problems with tow boats, and accidents or safety hazards. These additions were agreed upon during a RWG meeting on 19 May, 1994. Their suggestions, along with changes indicated during the fall 1993 pre-testing, were incorporated into the questionnaire prior to a final round of pretesting in May 1994. The final draft of the questionnaire as used for exit interviews on Pools 7 and 8 is in Appendix F.

A map of Pools 7 and 8 was used in conjunction with the exit interview questionnaires to record the location of boaters' activities, their "favorite" and "avoided" areas, and problem locations. The survey instruments used for the mail-back survey groups (also found in Appendix F) contained the same core questions as that used for the exit interviews but dock owners and marina boaters were not asked to record those locations on maps in conjunction with their mail-back questionnaires. Instead, those respondents were asked to simply record the name of favorite and avoided locations on the questionnaires.

The survey questionnaire sent to lock users was similar to the other mail survey questionnaires, with the majority of the questions aimed at describing the boaters' use of the river and soliciting their perceptions about conditions on Pool 7 and 8. Additional questions were inserted to place the boaters' use of Pools 7 and 8 in the context of their use of other areas of the river, especially their "home" pool.

Aerial Boat Counts

River managers indicated during the planning phase of the study their interest in obtaining better information on the types and numbers of boats using specific areas of the river, especially backwaters. Project managers were also interested in identifying areas where congestion occurs and the number of boats using dredge disposal sites (beaches). To meet these use estimation needs, a tentative plan was drawn up for conducting boat observations and counts from a boat travelling a designated route through the study area. This method had been devised for use on Corps lakes during previous studies as an alternative to costly and weather-limited aerial photography as a means of measuring boating activity.

However, the length of the study area (35 miles of river) and the difficulty involved in conducting observations from a boat in the extensive backwater areas² made the on-water method a less desirable option. During June 1994, arrangements were made for a small plane belonging to the Wisconsin Department of Natural Resources to be available for aerial counts originating at the centrally located La Crosse airport. For the remainder of the data collection period, aerial count flights were contracted for with a private charter service at the same airport. The counts were conducted by the study coordinator, student researchers, and in one instance, a Wisconsin DNR volunteer.

A total of 13 counts were scheduled with counts scheduled on weekdays and weekend days (Table A-3). The first count conducted on a weekday was scheduled to occur during the morning. All other counts were scheduled to begin either at 1:00 or 3:00 p.m. in order to focus the limited number of flights during peak use times. (The 1:00 p.m. flight times were scheduled when the Wisconsin DNR plane was used to allow the pilot sufficient time for the return flight to the planes' origin at Eau Claire, Wisconsin.)

Count Method and Routes

The person conducting the aerial boat observations sat behind or next to the pilot (on the right-hand side of the plane) and marked on a map the location of boats on the river. The map was marked with X's or arrows indicating stationary and moving boats, respectively. A count of boats in various parts of the study area and on beaches was subsequently tallied from the maps in the office.

During the first count an attempt was made to record boat types along with locations, as had been done during on-water counts on Corps lakes. However, this was found to be unworkable during aerial counts and was dropped after consultation with RWG members.

² A count exercise was conducted from a small boat in backwater areas to determine if on-water counts would be feasible in those areas. It was learned that vegetation (tall grasses and trees) and the inability to move quickly through braided-channel backwaters would prevent efficient water-level observation of boat traffic.

TABLE A-3. AERIAL BOAT OBSERVATION AND COUNT SCHEDULE

Count Day	Count Date	Count Start Time	Weather Conditions
Sunday	June 12	12:50 p.m.	82°, mostly sunny
Wednesday	June 15	9:25 a.m.	82°, partly sunny ^a
Thursday	June 23	1:00 p.m.	64°, cloudy, lt. shower
Saturday	June 25	1:15 p.m.	86°, mostly sunny
Saturday	July 16	1:00 p.m.	70°, light shower ^b
Sunday	July 17	1:20 p.m.	79°, mostly sunny
Tuesday	July 26	1:15 p.m.	71°, cloudy
Thursday	July 28	3:10 p.m.	80°, mostly sunny
Tuesday	August 2	3:00 p.m.	67°, foggy
Saturday	August 6	3:10 p.m.	73°, mostly cloudy
Sunday	August 14	3:05 p.m.	72°, mostly sunny
Wednesday	August 17	3:33 p.m.	79°, overcast, lt. shower
Sunday	August 21	3:10 p.m.	80°, mostly sunny

a. high of 92° for the day

b. 0.03 precipitation for the day

All counts originated at the La Crosse airport at the north end of French Island. A clock-wise loop route for the flights was pre-planned and cleared with the pilot to allow the observer an unobstructed view of the river out of the right side of the plane. Immediately after take-off, the plane crossed the southern portion of Lake Onalaska. It then passed over Lock and Dam 7 before proceeding north while flying just to the west of the river's main channel. At Lock and Dam 6 at Trempealeau, the plane crossed the river, turned south, and proceeded towards La Crosse maintaining a position just to the east of the river. This route was maintained as far as Lock and Dam 8 at Genoa where the plane once again turned north and maintained a position just to the west of the river before reaching Lock and Dam 7 and concluding the flight. An altitude 1000 to 1500 feet above the river and a flight speed of around 80 to 90 knots was maintained. Each flight required around 45 minutes to complete.

Limitations of Count Method

Conducting counts from the air has some advantages as well as disadvantages as compared to on-water counts. Aerial counts have the advantage of providing the possibility for accurate counts that are near to being "snapshots" of conditions at a particular time or for a short period of time. In contrast, because each on-the-water count takes several hours to complete, and because boats move about and may enter and leave the river during that time, on-the-water counts do not offer a "snapshot" count for one particular time. Also, the study

area would had to have been divided into smaller "count zones" for on-water counts, removing the possibility of measuring and describing use for the entire study area at any one time.

Boat counts using aerial photography can be quite expensive and require the additional expense of purchasing, developing and interpreting the film. The observational methods used for this study cannot claim the 100 percent accuracy of aerial photos but have the advantage of much lower cost (rental cost for the plane and pilot was about \$80.00 per hour). In areas where a plane is available near to the study area, plane rental may be considerably less expensive than the cost of a greater number of hours of boat rental (and fuel) that would be needed to cover the same area from the water.

An important advantage of the on-the-water counts, in addition to being unaffected by such factors as overcast weather or low cloud cover, is the ability to differentiate between different types of boats (e.g., fishing boats, speedboats, pontoon boats, houseboats, and personal watercraft). This is not always possible with aerial photographs because small and slow-moving boats may leave little wake, and because different types of boats may look very similar from above. As mentioned above, recording boat types along with locations was also found to be very difficult during aerial observations. RWG members decided recording boat types was not critical because patterns of use are somewhat dictated by river conditions (e.g., larger boats such as cabin cruisers and houseboats have to avoid most backwater areas due to shallow water, and smaller fishing boats tend to spend little time in the main channel).

Although every effort was made to conduct thorough observations, there is an increasing possibility that accuracy will decrease as the number of boats on the river increases. Boats may be double counted on the return leg of the count flights. Also, when areas of the river or beaches become congested, the number of boats may be under-counted. Finally, boats may be missed in remote backwater areas or where they are hidden by shoreline trees. In general, it is believed these errors balance each other out. Although an exact count cannot be claimed for peak use periods (i.e., weekend afternoons), when errors are most likely to occur, the counts are estimated to be within +/- five percent of the actual number of boats present.

Trailer Counts

In order to estimate the proportion of boats using the study area originating from public launch ramps, information on the number boats launching from individual ramps was needed. These data were obtained in conjunction with the exit interview periods scheduled at the launch ramps. Interviewers counted the number of boat trailers present at the beginning, two hours into, and at the end the interview period. Following this schedule, a total of 237 counts were possible over the 78 interview periods (plus the one instance where interviews were conducted at two ramps). In this way, the amount of use high and low-use ramps receive on weekdays and weekends and at various times of day can be estimated.

Appendix B

Description of Boater Survey Sample

Exit Interviews

A total of 335 exit interviews were completed at the public launch ramps over the 79 four-hour exit interview periods, an average of just over four interviews per period. Researchers conducting the exit interviews enjoyed a good responses from most boaters throughout the season. Eleven refusals occurred, and the occasional boater was encountered who was intoxicated or otherwise not in a condition to answer questions, but many seemed pleased to participate.

Interview Dates and Times

About 10% of the interviews were conducted during the Memorial Day weekend at the end of May, traditionally the first big boating weekend of the year, and the beginning of the exit interview schedule for this study. The greatest number of interviews were completed during June (41%). Survey activity slowed down in July, when only 27% of the interviews were conducted. This was partly due to a rainy Independence Day weekend, which is usually one of the busiest boating weekends of the year. Interviews picked up again in August, at the end of the survey season, when 73 interviews (22%) were conducted during the first two weeks of the month.

Though only 34 of the survey periods (43%) were scheduled on weekend days and holidays (or "peak days"), more than two-thirds of the interviews were conducted on those days due to higher weekend use of the river (Figure B-1a). This ratio of weekend to weekday interviews approximates the ratio of overall weekend to weekday boating traffic, as near as can be estimated using the aerial boat count data. Nearly seven interviews were conducted per weekend interview period versus just over two per weekday interview period.

The times interviews were conducted throughout the day also follows the general use distribution, with the majority of interviews occurring during the evening (4:00 p.m. to 8:00 p.m.) interview periods (Figure B-1b). Only about 18% of the interviews were conducted in the morning. Substantial numbers of boats may put in and be on the river before noon, but most of these boats do not take out until the mid- or late afternoon.

Interview Locations

About three-fourths of the interviews were conducted at the eight high-use ramps (Table B - 1). The majority of those interviews took place at three ramps; Trempealeau Landing, Clinton Street -West, and Green Island. Considering that use levels of the remaining high-use ramps were found to be much lower than at those three ramps, it may

Figure B-1a: Day of Week Surveyed

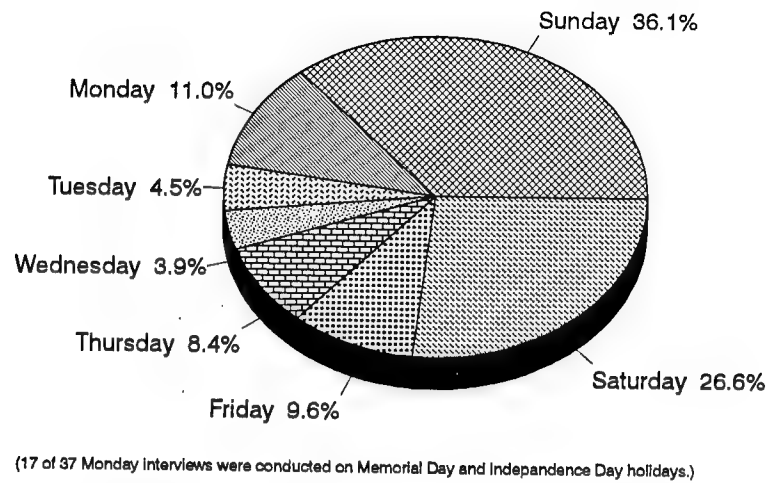


Figure B-1b: Time of Survey

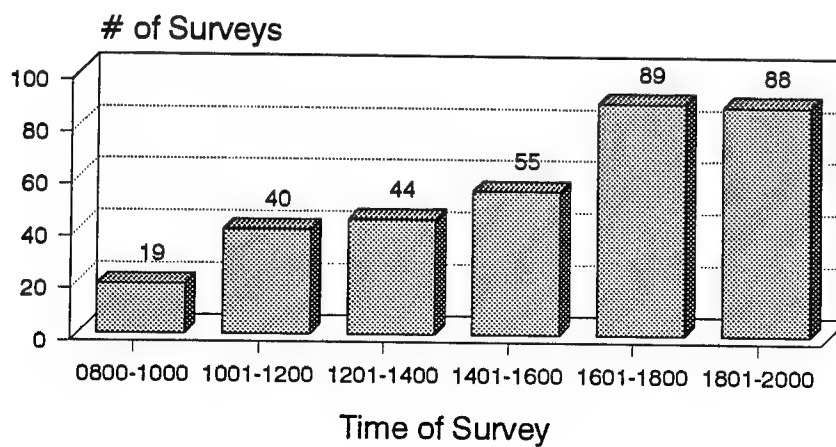


TABLE B-1. EXIT INTERVIEW COMPLETED AND EXITING BOATERS PASSED BY LAUNCH RAMP

Ramp	Interviews	Passes ^a
High Use - Pleasure Boat/Larger Fishing Boat Ramps		
Trempealeau Landing	31	28
Nelson Park Ramp	17	4
Logan Street Landing	17	5
Clinton Street Landing - East	8	3
Clinton Street Landing - West	93	114
Green Island Ramp	54	42
Goose Island Landing	16	3
Wildcat Park/Campground Ramp	<u>18</u>	<u>6</u>
	254 (76%)	205 (92%)
Low Use - Smaller Fishing Boat Ramps		
Brice Prairie Landing	3	2
Second Lake Access	6	0
Third Lake Access N/S	3	0
Round Lake Landing	3	1
Long Lake Landing	0	0
Mosey's Landing	6	1
Black River French Island	4	2
Fishermen's Road	15	2
Lower Dike 7	2	0
Pettibone Boat Club Ramp ^b	0	0
Sportmen's Landing	3	0
La Crosse Municipal Harbor Ramp	5	0
Upper Goose Island Ramp	15	3
Hunter's Point Ramp	2	0
Stoddard Park Landing	6	1
Sandbar Marina and Campground Ramp ^c	0	0
Lower I-90 Ramp	3	7
Upper I-90 Ramp	<u>5</u>	<u>0</u>
	<u>81</u> (24%)	<u>19</u> (8%)
Total:	335	224

a: The 224 passes listed include 11 refusals to participate.

b, c: No interview periods were scheduled at Pettibone Boat Club or Sandbar Marina ramps.

have been more accurate to use three stratum of ramps in designing the sampling schedule and to categorize the remaining five high-use ramps as "medium use."

Boaters Passed During Interview Periods

Overall, 40% of the exiting boaters were "passed" and not interviewed. Passes were much more frequent at the high use ramps, especially during busy weekend interview periods, where 45% of the boaters exiting were passed. More than one-half of the exiting boats were passed at the busiest ramp, Clinton Street - West. Only 19% of exiting boaters were passed at low-use ramps. Most passes occurred when boaters exited the river and left the ramp area while the interviewer was interviewing other boaters. This was especially common during the late afternoon, when there tended to be a rush of boaters exiting the river. The longer interview questionnaire than had been used in past studies and the use of a river map to record spatial data extended the interviews and increased the number of boaters passed. A few passes also occurred when rain showers temporarily interrupted interviewing.

Gender of Boaters Interviewed and Ramp User Party Size

Ninety-three percent of the boaters interviewed were male. Though data on the gender of the boaters using the ramps was not collected, females were clearly observed to comprise more than 7%. However, most of the boaters interviewed were male because males were more apt to speak up or volunteer to be interviewed when the boating party included both sexes. No attempt was made by the interviewer to select which boater in parties of greater than one would participate in the interview.

The average number of people using ramp users' boats was slightly less than three persons (Table B - 2). Less than 20% were solo boaters, and the greatest proportion of parties contacted contained two members.

TABLE B - 2. RAMP USER PARTY SIZE

Average party size: 2.8 people		
People in Party	Frequency	%
<hr/>		
1	57	17
2	133	40
3	65	19
4	39	12
5	15	4
>5	26	8

Mail Survey

Good return rates were realized for each of the three boater populations contacted through a mail survey with initial return rates ranging from 65 to 71% (Table B - 3). A high number of vacant private docks were observed during the inventory in June which led to the expectation that some individuals may be maintaining a dock or boathouse but no longer boat, though this could not be presumed from observation alone. In an attempt to identify non-boaters in the initial sample, mail survey recipients were asked to return the blank questionnaire if they no longer boated on the river.

Fifty-nine of the 410 dock owners and 15 of the 350 marina boaters who were mailed a questionnaire returned it not completed with a note explaining that they no longer owned a boat or were not currently boating. The reason given was usually related to advanced age or ill health. These individuals were subsequently deleted from the sample since they were no longer a member of the target population for the study. It may be that other members of the sample who did not return the questionnaire (non-respondents) were also non-boaters.

TABLE B - 3. ADJUSTED SAMPLE SIZES AND MAIL SURVEY RETURN RATES

	Q'naires Sent	Q'naires Returned	Percent Returned	Non- boaters	Adjusted % Returned
Dock Owners	410	291	71%	(-) 59	67%
Marina Boaters	350	239	68%	(-) 15	67%
Lock Users	172	104	60%	(-) 12 ^a	65%

a. The 12 lock users dropped from sample were boaters but had been double-sampled.

A similar reduction in sample size occurred in the lock user sample when it was realized some boaters had been contacted at both L/D 6 and L/D 8 and had inadvertently been placed in the survey mailing list twice. Twelve such duplications were discovered, reducing the sample size from 172 to 160. None of the twelve had returned both survey questionnaires so the number of questionnaires returned and included in the data set remained unchanged.

Appendix C

Method of Analysis of Survey Data

Numerous studies have established that visitors have widely varying attitudes, preferences, and motivations for recreation. Thus, in presenting the analysis of the data collected through exit interviews and mail surveys of Pool 7 and 8 boaters, the primary purpose is to describe the distinct user groups present on the river and present their preferences for and perceptions of existing conditions.

This survey documentation of boaters' perceptions and preferences is the most important potential contribution of the survey data toward improving management. In this way, managers may take advantage of boaters' many seasons of experience on the river to plan and target management actions. Survey data can indicate the conditions that are most important to the experience sought by different users and which of these conditions they perceive to be most threatened. The data can also guide management response to problems toward a particular boater or activity group that appears most affected (e.g., ramp users, or fishermen, etc.).

The boater survey sampling was structured by the existence of four different "access groups" (ramp users, dock owners, marina slip renters, and lock users). The survey data analysis continues this structure by tabulating and comparing survey responses from these groups. This user group segmentation recognizes that these groups may have significant differences in how they use the river, how they perceive existing conditions, and in their preferences for conditions. However, analysis may be structured in other ways. For example, boaters may be classified as to their "activity groups" (e.g., fishermen, pleasure boaters, water skiers, etc.) taken from *all* of the "access groups." This would be based on the expectation that boaters seeking similar recreation opportunities will likely have similar preferences for conditions.

Finally, the mode of access, activities, past experience on Pools 7 and 8, and the conditions sought can be described for the group of respondents who reported particular problems or whose survey responses indicated they are most affected by a particular condition they have encountered on the river such as crowding or congestion.

Analysis of Responses to Open-Ended Questions

Scientific analysis involves the reduction of data from unmanageable details to manageable summaries (Babbie 1992). Boaters' responses to the survey questions provide a wealth of "unmanageable details" which, after careful analysis, can be reduced to "manageable summaries." Because most of the questions on the survey questionnaires about boater perceptions and preferences are open-ended, that portion of the analysis presented some unique challenges.

In using open-ended questions, respondents were not limited to giving "yes/no" answers or responding to a limited range of provided responses. Instead, respondents' spoken answers to questions were written down by interviewers or, in the case of mail-back questionnaires, respondents wrote down their answers. The advantage of open-ended questions is that they allow the most latitude for boaters to communicate their responses to the questions without the limitations imposed by a list. A wider range of responses and more specific information are obtained.

Previous experience at gathering perception data from boaters at Corps lakes has shown that using this form of response is worthwhile, although they are more difficult to analyze. These studies demonstrated that visitors' opinions lie *between* "yes" and "no" and that they have many considerations related to our questions. It profits managers to understand the full complexity of the issues that are of most importance to visitors.

However, some means is needed to make the many and varied responses received accessible to the managers for whom the information was collected. Not only may there be a wide range of responses to open-ended questions, respondents may express what is essentially the same response in different words. These responses, taken as is, would be difficult for managers to use. The primary task during analysis of the survey data, then, is to sort out the these responses into meaningful categories that have meaning in relation to management concerns.

This sorting can be more broadly referred to as "data reduction," the process of which is detailed below. The next step "data display" occurs in the form of the survey response tables which form the heart of this report, and which flow from the reduction (Miles and Huberman 1994). Finally, conclusions can be drawn, using the tables as a guide, by noting patterns and anomalies and proposing explanations.

Coding of Open-Ended Responses

The first level of sorting of responses occurs as the responses are assigned code numbers and stored in a computer data base. Very similar responses are assigned the same code number and entered into the data base as identical. For example, the responses "good fishing," "better fishing," and "catch more fish there" and similar responses given by ramp users to the question "Why are those your favorite places?" were all coded and entered in the database as response No. 3.

Frequently, several responses were given to a question. For example, a boater may have noticed three different changes that have occurred on the river. In the case of mail surveys, respondents may have written several lines in response to a question (sometimes overflowing onto the back of the page) and the person coding must first pick out the separate responses within all the "extra" words. Most responses can be pared down to just a few words.

Though coding is a somewhat subjective process, the goal throughout is to differentiate between responses that are sufficiently different to require separate codes and those that can be treated as the same response. The degree of detail in coding depends on the research question, the "richness" of the data, and the researcher's purposes (Neuman 1991). In this study, the responses to the open-ended survey questions have proven to be rich in variety and detail. In keeping with the research objective of providing managers with a full understanding of boaters' perceptions, data coding, analysis, and presentation has tended towards *preserving* what are admittedly small differences in responses.

Tabulation and Categorization of Responses

After all the survey data has been entered and all responses to open-ended questions coded, the number of respondents in each survey group who gave each response are tabulated (for example, the "good fishing" responses listed in the preceeding paragraph were given 74 times by ramp users.) The tabulation is done using a simple program within dBase™ which produces a printout listing the number of times each code number (response) appears in the data set.

After tabulation, the list of responses received to each question are grouped into logical categories. An individual response category may have many different responses, or it may contain just one or a few. Table C - 1 contains a typical set of responses to the question "Why is that your favorite place?" from the ramp users interviewed in the "Solitude; Quiet; Fewer Boats" category.

TABLE C - 1. EXAMPLE OF CODED RESPONSE LIST

Response category: "Solitude; Quiet; Fewer Boats"

Code No.	Response	No. of Responses
4	Get away from big boats (avoid wakes); Less large boats	5
17	No people; Quiet; Private; Not Crowded; Remote	17
19	Don't have to worry about water skiers	1
20	Less boat traffic	22
26	No water skiers	1
55	Get away from personal watercraft	1
	Total:	47

Q. Why is that your favorite place?

Typically, several obvious groups stand out. For example, the ramp users' exit interview responses to the question "Why is that your favorite place?" were grouped into the ten categories shown in column one of Table C - 2. Each category contained from three to fifteen different responses (and corresponding code numbers).

TABLE C - 2. EXAMPLE OF CATEGORIZED RESPONSES TO OPEN-ENDED SURVEY QUESTION

Response Category	Number of Responses	Percent of Responses
Good Fishing	102	34%
Solitude/Quiet/Fewer Boats	47	16%
Good Beaches	38	13%
Close to Home/Convenient	35	12%
Scenery; Wildlife; Other Natural Features	6	2%
Calm/Shallow Water; Less Wakes/Current	38	13%
Facilities/Services	4	1%
See Friends/Family; Social Reasons	9	3%
Deeper Water; Less Obstructions	6	2%
Other Reasons	<u>13</u>	<u>4%</u>
	298	100%

Q. Why is that your favorite place?

The total number of responses given to each question should equal the sum of the number of responses in each response category. If the numbers do not balance, a check is made for missed responses or arithmetic errors. Dividing the number of responses in each category by the total number of responses then yields the percentage of responses in each category. It is these responses that are displayed in the data tables for the open-ended questions. For the question shown in Table C - 2, a total of 298 responses were given, with three-quarters of the responses falling into the first four categories listed.

An effort was made to choose response category names which best characterize the majority of responses in the category. However, some category names may be broad and the specific responses contained in the category may not be apparent. In those instances, the reader of this report may turn to the coded list of responses in Appendix G and find listed all of the responses given in each response category by the boater groups surveyed. Typically, *a few responses make up a majority of the responses in a category*, though 20 or more different responses may have been given.

Survey Response Tables

Boater Group Profile Data

The descriptive boater group profile tables and charts (Table 1 and Figures 3 through 12) are largely self-explanatory. Most of the vertical-bar charts present the percentage of each boater group that falls into a specified descriptive categories (e.g., the proportion of boaters who have been coming to Pools 7 and 8 five years or less) or the percentage who meet a specified attribute (e.g., used a fishing boat). Here the purpose is to give a general description of each boater group and to highlight the major differences between the boater groups and how they use the river.

Perception Data

Tables 2 through 13 contain the categories of responses to each open-ended question and the percent of all responses in each category given by each of the four survey groups. Survey results are reported in terms of percent of responses rather than percent of respondents because one respondent may give several different responses in the same category. For example, a respondent may have listed several changes they would "like to see occur", each stored in the data base separately, but that all fall into the "improvements to facilities" category.

It is hoped this categorization of responses will prove to be the most appropriate degree of "lumping" of survey responses for application to management questions and decisions. However, because it is not possible to predict all of the questions or management issues to which managers may want to apply the survey data, the data needs to be easily accessible in its ungrouped form. A user of the survey data may want to know how often a specific response to a question was given, or perhaps may want to re-categorize responses to meet a particular need. The dBase™ program in which the survey data is stored allows this accessibility. Lists of responses given and the number of times each response was given (as shown for a single response category for one survey group in Table C - 2) are provided in Appendix G.

It is appropriate to provide a warning here concerning comparison of responses between survey groups. Though survey groups may have similar proportions of responses within a category, the number of responses may be quite different. This is because there may be much fewer responses to the same question from one group than another, especially when the number of respondents (the sample size) is much smaller.

For the same reasons, fewer responses in a category to a question that had few total responses may make up as high a percentage of responses as another larger group of responses to a questions with more total responses. For example, 102 ramp user responses in the "Good Fishing" category made up 34 percent of the total number of responses to the "favorite location" question. However, a nearly equal 110 ramp user responses in the "Too

Many Boats/Wakes" category to the "why avoid" question, with about 30 percent fewer total responses, made up 52 percent of responses.

Crowding Data

The final results section (Figures 13 and 14) summarizes the responses to questions about the number of boats the respondents are encountering on the river as compared to the number they expected and the number they would prefer to see. A pair of three-part scale questions was used for the exit interviews and for the mail surveys.

Appendix D

Report on Reconnaissance, Inventory, and Preliminary Planning

I. PURPOSE OF RECON AND PRELIMINARY PLANNING

One primary purpose of the reconnaissance work performed this last week has been to observe the means of boater access to the Pool 7 and 8 study area and to note some specific characteristics of these accesses that impact planning for a survey of boaters using the study area. Information on size, location and public use of these accesses is needed to make judgements about the most efficient and effective means to conduct a boater survey. In addition, this information is used to develop some estimate of the logistical demands of conducting a study, including the time and personnel needed to conduct data collection. With the assistance of Ranger Jerry Lee, I was able to visit all of the public boat accesses and marina/livery operations on Pools 7 and 8.

Another purpose of the reconnaissance has been to get a closer look at the recreation resource. Hopefully, time spent on the water will lead to increased understanding of boater use patterns and of the characteristics of specific areas and their relation to each other. Special attention has been directed to observation of the location and access to backwater areas, location and use of beaches, and boat traffic concentrations.

Discussion with members of the Recreation Work Group have been used to gather additional information about access to and use of Pools 7 and 8. These discussions were also scheduled so that the study planners could receive input from different perspectives about the information that is most needed for improved management of the Upper Mississippi and Pools 7 and 8 in particular. In order for the study to have the maximum utility to all of the resource managers with responsibility for the Upper Mississippi, the data collection needs to be directed by this input. The baseline data collection methods we have developed need to be evaluated as to their potential for answering critical management questions/information needs. Any additional data collection to meet the specific needs of navigation project management or to address issues of concern on the study area should be a product of these and future discussions.

II. RECONNAISSANCE AND INVENTORY

Public Accesses

Visits to the public ramps were used to note location, condition, accessibility, and likely user types and levels of the ramps. For the purpose of setting up an exit interview sampling schedule, the ramps need to be categorized by the type and/or level of use they

receive. The categorization is based on the appearance of the facility and the information given by area resource managers on the use of the facility. At this point the categorization is tentative and is open to later revision.

Thirty-one access areas were visited. Nine of these accesses appear to receive little public use because the ramp is small (usually gravel or sand), relatively inaccessible, or near to more developed ramps. However, these ramps may be important to boaters launching small and non-powered craft.

Sixteen of the launch ramps appear to fit into the "medium" use category. These ramps have one or two-lane asphalt or concrete ramps with parking for 10 to perhaps 30 trailers. Some examples are the Fishermen's Road and Goose Island accesses.

Six accesses have been categorized as "high use." These are two to four-lane ramps with large (50 to 100 trailer) paved parking areas. These include the Trempealeau, Clinton Street, and Green Island Landings.

Marinas

The marinas were visited to get some idea of the size of each marina operation and to see whether the marinas had boat ramps that may receive some public use. Twenty-one marinas/liveries were visited. Eleven of these are small businesses that typically offer long-term dockage for a few boats. They may also offer fuel, bait and perhaps small boat rental to the public. These businesses either do not have a boat launch ramp or have a small ramp available to the public for a one or two dollar fee.

The remaining ten marinas have from about 30 to over 200 long-term dockage boat slips. These marina operators will be asked to provide the names and addresses of long-term renters so a survey mailing list can be constructed. At that time, the actual number of boaters currently renting slips would be determined. It is estimated that there are about 800 rental slips at the ten primary marinas.

Most of these larger marinas have launch ramps that are available to the general public for a fee, though they are likely used primarily by slip renters. The Pettibone Yacht Club and Municipal Boat Harbor are exceptions in that, because they are on public land, they have public launch ramps.

Other Boat Accesses

Another important mode of boat access to Pools 7 and 8 is from private boat docks or boat houses adjacent to private residences or other private land. There are concentrations of these docks in the Brice Prairie area in Pool 7, and along both shores of the Black River in LaCrosse and Onalaska, and near Stoddard and Brownsville in Pool 8. It will be necessary to compile a list of names and addresses of these dock owners so that they may be contacted

through a mail-back survey. Ranger Jerry Lee informed me that these names are available from Corps of Engineer files where the docks or boat houses are under permit on Corps land. Names of dock owners with docks adjacent to private land will have to be retrieved from County or Municipal records or from some other source.

A couple of other minor group of boaters who do not fall into any of the above mentioned "access groups" are those who camp at the South Pettibone Island Park and those who rent canoes at the Goose Island Camp Office. Some method of on-site distribution of questionnaires would have to be used, or a list of boater names would have to be provided, if these boaters are to have the opportunity to be included in the survey sample.

Lock Traffic

Because many boaters using Pools 7 and 8 may gain access to the Pools from adjacent pools (Pools 6 and 9), it will be necessary to contact these boaters as they lock through at Locks 6 and 8. Lock records show that in 1992 there were over 12,000 recreational craft locked through at Lock 6, and over 8,400 at Lock 8, both new highs. One potential means of contacting these boaters is by giving them, as they lock through, a postage-paid post card soliciting their participation in the study and asking for their name and addresses so that a survey questionnaire may be sent to them at a later date. Another option is to distribute the mail-back questionnaires directly at the locks.

III. DISCUSSIONS WITH RWG MEMBERS

Individual and group discussion with members of the RWG from each of the agencies involved in management of the Upper Mississippi were used to help define the most important data needs and the issues of most concern from several different perspectives. The RWG members believe that the data collected with the existing boater survey will be useful in addressing many of the issues identified in the CRMP. Some other types of information have also been requested and are listed in the following section.

Beyond specific issues and types of information to be collected, RWG members have provided their views of how broad the study needs to be and how it should fit into the overall management information data collection effort on the Upper Mississippi. The following items summarize these comments:

1. **STUDY MUST BE INTEGRATED, COMPREHENSIVE AND SYSTEM-WIDE:** The study needs to investigate issues of concern regarding navigation, wildlife, and the river environment along with issues of recreation. Information gathered on these issues should tie into the information gathered in concurrent studies targeted at navigation and wildlife issues. Boating activity by those contacted in the test study area needs to be understood beyond the boundaries of the test study area. The study should include sampling of the full range of boater types and access groups. For example, care should be taken that users of small and non-powered craft (e.g., canoes) and boaters who gain access from private docks or boathouses are included in the study.

2. **SPATIAL DATA IS OF PRIMARY IMPORTANCE:** Knowing where boating activity occurs, as well as how much, what type, and when, is critical to understanding the impacts of recreational boating on commercial navigation, fish and wildlife, and the river environment. Measurement of possible impacts could be targeted using this information. Current use estimation methods supply some information on use patterns and levels on the main channel but little data is available on the use of the extensive backwater areas though these areas are where impacts on fish and wildlife and the river environment are most likely to occur, and where conflicts between boater types appears to be occurring.

IV. INTERVIEWS WITH BOATERS

Informal interviews were conducted with boaters exiting several different boat launch ramps including Clinton Street West, Fishermen's Road, and Goose Island Landings as well as with marina boaters at several locations. The researcher spent from 15 to 30 minutes at each location visited. These interviews were conducted in order to get some sense of the boaters use of, level of experience with, and knowledge about the study area and their ability to provide information about their use of the area and their perceptions of conditions. In addition, it was hoped that boaters would reveal something about their concerns regarding their recreational use of the area. This information would then be used, in combination with input from managers of the study area, to help guide creation of the exit interview and mail-back questionnaires to be used in the study.

This method of informal interviewing was used in lieu of formal exit interviews for several reasons. First, more contacts could be made at more locations using this method than if formal interviews were done. Formal interviewing is accomplished through four or five-hour interview periods at individual access points, with interview periods scheduled at as many different access points possible to cover in the available time and with the available personnel. It is also desirable to contact boaters who are exiting the lake in the morning (typically fishermen) as well as those who exit in the afternoon (mostly pleasure boaters). The time and location coverage possible with a single interviewer would be very limited.

Further, any data collected in the limited time available would be from such a limited and unrepresentative sample that there would be no validity to the larger boater population or even to one "access type" segment of the boater population (such as ramp users). Therefore, the usefulness of the data for survey design and planning would be limited. Also, the basic set of questions that comprise our current questionnaire have been used in several previous water-based recreation situations and we do not believe would benefit from pre-testing in this application to boaters.

A critical future task with regard to the survey instrument, however, will be to insert questions that gather information of primary importance to the members of the RWG and that are not sufficiently addressed with the current questionnaire.

Pre-testing of a revised questionnaire would be accomplished in late spring 1994 before the start of data collection on Memorial Day weekend. Development of the questionnaire would proceed from the production of a draft based on the discussions held during this preliminary planning phase. RWG members will be asked to review the survey instrument and a final draft would be prepared and distributed prior to pre-testing. The purpose of pre-testing is to fine tune the questionnaire so that it functions as well as possible to collect the desired information from boaters.

The roving method used to contact boaters (rather than four or five hour long interview periods typically scheduled at individual locations for formal exit interviews) also

allowed the researcher to make observations of weekend use levels and traffic patterns at public accesses. This information was unknown for many of the public accesses and is an important element of survey planning. Counts of trailers parked at many of the public accesses in the study area were made on several days and at several different times of day. This information gave some indication of the amount and type of boaters using these accesses (based on the types of trailers observed) and of the use pattern through a weekend day. Observation of the traffic pattern followed by boaters entering and leaving the water is useful for determining the best positioning of interviewers at the access.

Limited interviews of boaters using the existing, un-modified survey questionnaire were also performed at access points. These interviews were not for the purpose of gathering survey data but instead are to provide some indication of the receptivity of boaters to exit interviews and their ability to give the information requested on their use of the Upper Mississippi.

In addition, there is some question as to boaters ability to specify on a map the locations where they participated in boating activities, and their favorite and avoided locations, especially within the complex backwater areas. Thus boaters will be asked to mark these locations on maps of Pools 7 and 8 during these interviews. The maps of Pool 7 and 8 produced for public distribution by the US Fish and Wildlife Service (1:42,240 scale) will be used. The results will also give some indication of the best scale map to use based on the boaters familiarity with, and ability to understand and use, the map.

The 1:45,000 scale (1 inch = 0.71 mile) maps provided by the Environmental Management Technical Center and on which the access points have been plotted would have the advantage of more convenient use during exit interviews and simplified digitizing of spatial data but may not be of sufficient detail for boaters to locate their use areas in the backwaters or for maximum usefulness for planning. A smaller scale map shows more detail and would permit better pinpointing of spatial data, which is desirable for making the data most useful in reference to relatively small, specific areas of the study area (e.g., areas of critical importance to wildlife or of highest potential for disturbance or conflicts).

V. POSSIBLE ADDITIONS TO SURVEY DATA COLLECTION

Several types of information that are not collected with the survey instrument used at Corps lakes have been mentioned for possible inclusion in a future study. Some of these are essentially expansion or modification of existing areas of inquiry in the current survey instrument that are necessary to make the transition from studies of boating on enclosed reservoirs to boating on specific "open-ended" pools of the Upper Mississippi. These adjustments to the survey instrument should be relatively easy.

Other items are entirely new and will require more extensive consideration. The specificity of information needed to address these new issues has to be determined before survey questions can be designed to gather the desired information.

Some of the new areas of information requested area:

- The portion of river used beyond Pools 7 and 8
- Locking and frequency
- Familiarity with the Mississippi
- Perceptions of Pool conditions (why choose specific pool(s)?)
- Location and length of time camping on river
- Non-water based activities (hunting, picnicking, etc.)
- Party size
- "Impending displacement"?
- Awareness of Refuge, closed areas, voluntary avoidance areas
- Attitudes toward use limitation in sensitive areas
- Proper/safe operation of boats around tows
- Potential of wakes to cause erosion

PUBLIC ACCESS RAMP INVENTORY: POOLS 7 AND 8; AUGUST 30-31, 1993
 (Trailer capacity based on previous inventory reports or observation)

<u>RAMP</u>	<u>TRAILER PARKING</u>	<u>RAMP DESCRIPTION</u>
<u>POOL 7 - WISCONSIN</u>		
1. TREMPEALEAU LANDING	Paved; 53 trailers	Two 2-lane ramps
2. LARRY'S LANDING	Small marina operation	1-lane ramp available for fee
3. SECOND LAKE ACCESS	Large paved lot	1-lane asphalt ramp
4. THIRD LAKE ACCESS N/S	Large paved lot (shared with Second Lake Access)	2 1-lane asphalt ramps
5. ROUND LAKE LANDING	Small gravel parking area	1-lane concrete ramp
6. LONG LAKE LANDING	Small gravel parking area	1-lane concrete ramp
7. LONE TREE LANDING	Carry-in; dirt road access	
8. BRICE PRAIRIE LANDING	Paved; 25 trailers	2-lane concrete ramp w/dock
9. MOSEY'S LANDING	Gravel; 12 trailers	2-lane asphalt ramp
(Fishermen have said that Red Sails Resort allows free public use of ramp)		
<u>POOL 7 - MINNESOTA</u>		
10. DRESBACH PARK	Few trailers/narrow access road	Small, 1 lane ramp
11. DAKOTA	Few trailers/some may park on River Street	Small, steep gravel ramp, eroded

FRENCH ISLAND

12. BLACK RIVER FRENCH ISLAND (near beach)	Dirt/grass parking area	1 lane asphalt/gravel; eroded at bottom
13. FISHERMEN'S ROAD (near spillway dam)	Large dirt parking area	1 lane concrete
14. N.FISHERMEN'S ROAD	Off dirt roads, turnaround	Shallow water; ramp at end of road rutted, unusable
15. UPPER AND LOWER DIKE 7	Dirt parking, low use	Gravel ramps
16. NELSON PARK	Paved lot, 20+ trailers	Two concrete ramps w/dock

POOL 8 - BLACK RIVER/RICHMOND BAY (Catgut Slough)

17. LOGAN\CLINTON ST. LANDING	Large paved lot	Two cement ramps w/docks
18. CLINTON ST. WEST	Large paved lot	Nice 4-lane ramp w/dock
19. RICHMOND BAY LANDING	No parking	1-lane asphalt

POOL 8 - WEST CHANNEL

20. SPORTSMAN'S LANDING	Closed due to bridge construction
-------------------------	-----------------------------------

POOL 8 - WISCONSIN/GOOSE ISLAND

(Public ramp at LaCrosse Municipal Harbor may get significant use)

21. GREEN ISLAND RAMP	Paved, 60+ trailers	2-lane concrete ramp
22. UPPER GOOSE ISLAND	Gravel parking; 10+ trailers	1-lane asphalt ramp
23. UPPER GOOSE IS.-EAST	No ramp (carry-in)	
24. GOOSE ISLAND LANDING	Paved; 25 trailers	2-lane asphalt ramp

25. HUNTER'S POINT	Dirt; 30 trailers	2-lane gravel ramp
26. STODDARD PK. LANDING	Gravel; 20+ trailers	1-lane concrete ramp
27. GENOA HARBOR	Gravel; 10+ trailers	1-lane concrete ramp

POOL 8 - MINNESOTA

28. WILDCAT PARK & CAMPGR.	Gravel; 10 trailers	2-lane concrete & 1-lane gravel ramps
29. SANDBAR MARINA & CAMPGROUND	Dirt parking	1-lane concrete ramp
30. LOWER I-90	Dirt, 30+ trailer capacity	20 ft. wide, cement (USFWS)
31. UPPER I-90	26 trailer capacity (?) most stalls small	Two cement ramps and courtesy dock (MDNR)

MARINA INVENTORY: POOLS 7 AND 8 AUGUST 31, 1993
(Locations double underlined are priority sites for inclusion in sampling plan.)

POOL 7 - WISCONSIN

- | | |
|--|---|
| 1. COZY CORNER COTTAGES | Small; 5 cabins, rentals; no ramp |
| 2. CLEARWATER RESORT | Small; rentals; no ramp |
| 3. RED SAILS RESORT | Camping and motel; 1-lane ramp |
| 4. SCHAFER'S BOAT LIVERY | Small operation; rentals, bait, no ramp |
| 5. <u>LACROSSE SAILING CLUB</u>
(NELSON PARK) | 49 slips; use Nelson Park ramp |

POOL 8 - BLACK RIVER/RICHMOND BAY

- | | |
|---|--|
| 6. SIAS ISLES BOAT LIVERY
(Onalaska) | Small marina, 1-lane ramp (\$1 fee) |
| 7. <u>BLACK'S COVE MARINA</u> | 38 slips; rentals; 1 lane ramp |
| 8. <u>R&R MARINE</u> | 42 slips; rentals; 1 lane ramp |
| 9. AL'S MARINA | Did not find (defunct?) |
| 10. BOB'S BAIT SHOP MARINA | Small, decaying marina |
| 11. <u>BEACON BAY MARINA</u> | Approx. 140 slips; 2 cement ramps (fee) |
| 12. <u>FRENCH ISLAND YACHT CLUB</u> | Adjacent to Beacon Bay; Approx. 30 slips |
| 13. PANKE'S BOAT LIVERY
(Copeland Boat Dock) | No ramp; rentals, fuel |

POOL 8 - BARRON ISLAND/WEST CHANNEL

- | | |
|---------------------------------|--------------------------------------|
| 14. ALLEN'S BOAT LIVERY | Small marina |
| 15. <u>BIKINI YACHT CLUB</u> | 75 slips behind Holiday Inn; no ramp |
| 16. <u>PETTIBONE YACHT CLUB</u> | 220 slips; public concrete ramp |

POOL 8 - WISCONSIN

- | | |
|--------------------------------------|--|
| 17. <u>LACROSSE MUNICIPAL HARBOR</u> | Leased from City; public ramp, 120 slips |
| 18. <u>WATERS EDGE MOTEL</u> | 45 slips; small marina with motel/camp;
1-lane ramp (fee) |
| 19. ENGH'S BOAT LIVERY | Very small operation; no slips or ramp |
| 20. GENOA HARBOR | small dock near ramp; few boats present |

POOL 8 - MINNESOTA

- | | |
|--|--|
| 21. <u>SANDBAR MARINA & CAMPGROUND</u> | 30 Slips; 1-lane cement ramp with large
gravel parking area (fee) |
| 22. <u>LAWRENCE LAKE MARINA</u> | 35 slips; 1-lane ramp; parking along access
road |
| 23. HILL'S BOAT LIVERY | Small operation; no slips seen |

Appendix E

Upper Mississippi River Exit Interview Schedule - Pools 7 and 8

Morning interview periods run from 8:00 a.m. to 12:00 noon
Afternoon interview periods run from 12:00 noon to 4:00 p.m.
Evening interview periods run from 4:00 p.m. to 8:00 p.m.

Pleasure Boater/Larger Fishing Boat/Higher Use Ramps

Weekday Mornings (8)

June 7	Goose Island
June 8	Clinton Street - West
June 9	Nelson Park
June 20	Green Island
July 25	Brice Prairie
August 1	Trempealeau
August 8	Clinton Street - East
August 12	Logan Street

Weekday Afternoons (8)

June 1	Brice Prairie
June 3	Trempealeau
June 3	Clinton Street - West
June 9	Goose Island
June 16	Logan Street
June 27	Green Island
July 5	Clinton Street - East
July 28	Nelson Park

Weekday Evenings (8)

May 31	Trempealeau
June 21	Nelson Park
June 30	Logan Street
July 14	Green Island
July 26	Goose Island
July 26	Brice Prairie
July 27	Clinton Street - East
August 12	Clinton Street - West

High Use Ramps (cont.)

Weekend Mornings (5)

June 4	Brice Prairie
June 12	Green Island
July 2	Clinton Street - West
August 6	Logan Street
August 13	Trempealeau

Weekend Afternoons (5)

May 29	Goose Island
June 5	Clinton Street - East
June 18	Trempealeau
July 4	Clinton Street - East (ADDED)
July 23	Clinton Street - West
July 31	Logan Street

Weekend Evenings (5)

May 29	Clinton Street - West
June 11	Goose Island
June 25	Green Island
July 17	Brice Prairie
July 17	Nelson Park

Smaller Fishing Boat/Lower Use Ramps

Weekday Mornings (7)

May 31	Round Lake
June 1	Second Lake
June 15	Upper Goose Island
June 17	French Island Black River
July 8	Hunter's Point
August 10	Lower I-90
August 12	LaCrosse Municipal Harbor

Weekday Afternoons (7)

June 2	Sportsman's Landing
June 22	LaCrosse Municipal Harbor
July 1	Upper Goose Island
July 20	Upper I-90
July 27	Round Lake
July 29	Mosey's Landing
August 1	Wildcat Park

Weekday Evenings (7)

June 23	Upper I-90
June 29	Lower I-90
July 13	Long Lake
July 21	Second Lake
July 21	LaCrosse Municipal Harbor
August 9	Mosey's Landing
August 11	Stoddard Park

Lower Use Ramps (cont.)

Weekend Mornings (5)

May 30	Sportmen's Landing
June 19	Upper Goose Island
July 3	Lower Dike 7
July 16	Third Lake
July 31	Lower I-90

Weekend Afternoons (5)

June 4	French Island Black River
June 5	Round Lake
June 11	Stoddard Park
July 9	Upper I-90
July 16	LaCrosse Municipal Harbor

Weekend Evenings (5)

May 30	Sandbar Park/Marina
June 18	Third Lake
June 25	Fishermen's Road
July 4	Hunter's Point
July 3	Upper Goose Island

Exit Interview Schedule; Large Ramps

	Morning	Afternoon	Evening
Peak Days (Weekends and Holidays)	August 13 Trempealeau	July 31 Logan Street	July 17 Clinton St. - West
	June 4 Brice Prairie	June 5 Clinton St. - East	May 29 Brice Prairie
	August 6 Logan Street	May 29 Goose Island	June 25 Green Island
	July 2 Clinton St. - West	July 23 Clinton St. - West	June 11 Goose Island
	June 12 Green Island	June 18 Trempealeau	July 17 Nelson Park
Weekdays	August 12 Logan Street	June 1 Brice Prairie	July 26 Goose Island
	June 9 Nelson Park	July 5 Clinton St. - East	June 21 Nelson Park
	August 8 Clinton St. - East	June 3 Clinton St. - West	July 14 Green Island
	June 7 Goose Island	June 16 Logan Street	July 26 Brice Prairie
	July 25 Brice Prairie	June 27 Green Island	July 27 Clinton St. - East
	June 20 Green Island	July 28 Nelson Park	May 31 Trempealeau
	August 1 Trempealeau	June 9 Goose Island	June 30 Logan Street
	June 8 Clinton St. - West	June 3 Trempealeau	August 12 Clinton St. - West

Exit Interview Schedule; Small Ramps			
	Morning	Afternoon	Evening
Peak Days (Weekends and Holidays)	July 3 Lower Dike 7	June 11 Stoddard	June 25 Fishermen's
	May 30 Sportsmen's	June 4 Black River Fl	June 18 Third Lake
	July 16 Third Lake	July 9 Upper I-90	May 30 Sandbar
	July 31 Lower I-90	June 5 Round Lake	July 4 Hunter's Pt.
	June 19 Upper Goose	July 16 La Crosse Mun.	July 3 Upper Goose
Weekdays	June 15 Hunter's Pt.	June 17 Sportsmen's	August 9 Mosey's Landing
	July 20 La Crosse Mun.	July 12 Mosey's	July 21 Second Lake
	June 14 Upper Goose	June 29 Upper Goose	June 23 Upper I-90
	June 15 Black River Fl	June 20 La Crosse Mun.	June 29 Lower I-90
	June 10 Round Lake	July 1 Upper I-90	July 21 La Crosse Mun.
	July 19 Lower I-90	July 11 Round Lake	July 13 Long Lake
	June 10 Second Lake	July 20 Wildcat Park	August 11 Stoddard

Appendix F

Survey Instruments - Pools 7 and 8

UPPER MISSISSIPPI RIVER BOATER SURVEY
POOLS 7 AND 8

Q. NO. _____
OMB #0710-0001
Expires 30 Nov 95

Date _____ Time _____ Location _____

Interviewer _____ Gender _____ Party Size _____

"Hello. My name is _____. I am helping to conduct a survey of boaters so that the managers of the Upper Mississippi River can learn more about your visits here and how your visits might be improved. Could I take a few minutes of your time to ask you about your experiences on the river today?"

I. VISITOR DESCRIPTION AND EXPERIENCE

1. Have you boated on Pools 7 or 8 before this visit? YES NO

IF YES:

How many years have you been boating on this part of the Mississippi? _____ YEARS

(IF RESPONDENT IS NOT SURE, APPROXIMATE ANSWER IS O.K.; IF 1994 IS FIRST YEAR, ANSWER IS "0")

2. About how many days do you boat on Pools 7 and 8 in a typical year? _____ DAYS
About how many of those days would be weekend days and how many would be weekdays?

WEEKEND DAYS _____

WEEKDAYS _____

3a. Where is your permanent residence? (RECORD CITY, STATE, ZIP CODE)

_____/_____/_____

b. How far is this launch ramp from your home? _____ MILES

II. DESCRIPTION OF PRESENT VISIT

4. Has this been a one-day visit? YES NO

IF NO...How many days has your visit been? _____ DAYS

5. What time did you get on the water today? _____ AM / PM

6a. What type of boat did you use today?

- | | |
|---------------------------------|------------------------|
| () Runabout/Speedboat/Ski boat | () House boat |
| () Fishing boat/Bass boat | () Cabin cruiser |
| () Pontoon boat | () Row boat/canoe |
| () Personal watercraft | () Sailboat/Sailboard |
| () Other _____ | |

b. IF BOAT IS MOTORIZED: How many horsepower is your boat? _____ HP

c. What is the length of your boat? _____ FEET

7a. Here is a list of activities you may have participated in today (HAND BOATERS LIST).
Can you tell me what percent of your time you spent on these activities today?
(TOTAL SHOULD = 100%)

Fishing (FS) _____ % Cruising (CR) _____ %

Using Beach (BC) _____ % Water Skiing (WS) _____ %

Other Activities (OT) _____ %(describe) _____

b. Can you show me where you did those activities on this map?
(USE ABOVE ABBREVIATIONS; NOTE ACTIVITIES OUTSIDE THE STUDY AREA)

c. IF USED BEACH SITE, ASK: Which of the following activities did you do at the beach sites
you used? (REFER BOATER TO LIST ON BACK OF CARD)

Group Cookout/Party	_____	Swimming	_____
Relaxing/Sunning	_____	Camping (tent or boat)	_____
Picnicking	_____	Other	_____

8. What percent of your time did you spend in the main channel during this visit? _____ %

III. VISITOR PERCEPTIONS OF CONDITIONS

9. Do you have a **favorite** place to go on Pools 7 and 8? YES NO

IF YES: NOTE LOCATION: _____

Can you show me that location on this map?

Why is that/are those your favorite place(s)? (PLEASE BE AS SPECIFIC AS POSSIBLE TO
FACILITATE ACCURATE CODING OF RESPONSES).

10. Are there any parts of Pools 7 and 8 you deliberately **avoid**? YES NO

IF YES: NOTE LOCATION: _____

Can you show me those places on this map?

Why do you avoid that/those parts of the river? (PLEASE BE AS SPECIFIC AS POSSIBLE.)

11. What do you **like the best** about this part of the River? (PROBE FOR SPECIFIC PHYSICAL
OR SOCIAL CONDITIONS; NOT TIMES, DAYS, OR LOCATIONS)

IV. COMPARISON TO OTHER AREAS

12a. Do you use **other Mississippi River pools** or **other rivers** or **lakes** to do the same type of boating you did today? (IF YES, LIST OTHERS)

b. IF YES...Why did you come **here** today instead of one of those other places?

V. VISITOR PERCEPTIONS OF CHANGES OCCURRING

13a. Have you noticed any **positive or negative changes** on Pools 7 or 8 in the last five years (OR SINCE BOATER HAS BEEN COMING TO RIVER IF <5 YEARS)? YES NO
(IF YES, DESCRIBE CHANGES NOTICED BELOW)

b. IF YES...Have these changes affected your **enjoyment or use** of Pools 7 and 8? YES NO
(IF YES...In what way?)

14. Are there changes you would **like to see** on Pools 7 and 8? YES NO
(IF YES, DESCRIBE THEM BELOW.)

VI. EXPECTATIONS AND PREFERENCES FOR NUMBER OF BOATS

15. Which of these statements best describes your expectations for the number of boats on the river?
(CIRCLE ONE)

- I saw ABOUT AS MANY boats as I expected to see today.
I saw MORE boats than I expected to see today.
I saw FEWER boats than I expected to see today.

16. Which of these statements best describes your preference for the number of boats on the river?

(CIRCLE ONE)

- I saw ABOUT AS MANY boats as I wanted to see today.
I saw MORE boats than I wanted to see today.
I saw FEWER boats than I wanted to see today.

VII. PROBLEMS AND CONFLICTS

17a. Did you have any problems or conflicts with other visitors while on Pools 7 and 8? YES NO
(IF YES, DESCRIBE PROBLEMS AS SPECIFICALLY AS POSSIBLE BELOW)

...And where did that problem occur? (MARK ON MAP AS "P1")

b. Did you have any problems with tow boats while on Pools 7 and 8? YES NO
(IF YES, DESCRIBE PROBLEM) _____

...And where did that problem occur? (MARK ON MAP AS "P2")

c. Did you see or experience any accidents or safety hazards while on pools 7 and 8? YES NO
(IF YES, DESCRIBE ACCIDENT OR HAZARD) _____

...And where was that accident/safety hazard? (MARK ON MAP AS "P3")

d. Did you have any other problems during your visit? YES NO
(IF YES, DESCRIBE PROBLEMS) _____

VIII. ADDITIONAL COMMENTS

18. Are there any additional comments you would like to make concerning Pools 7 and 8?

THANK BOATER FOR THEIR PARTICIPATION IN SURVEY!

UPPER MISSISSIPPI RIVER BOATER SURVEY
POOLS 7 AND 8 - DOCKS AND BOATHOUSES

Q. NO. _____
OMB #0710-0001
Expires 30 Nov 95

First, please tell us about your past experience on Pools 7 and 8, and how much you use the river.

1. How many years have you been boating on Pools 7 and 8 of the Mississippi? _____ YEARS
(IF 1994 IS YOUR FIRST YEAR, THE ANSWER SHOULD BE "<1")

2a. About how many days do you boat on Pools 7 and 8 in a typical year? _____ DAYS

b. How many of those days would be weekend days and how many would be weekdays?

NUMBER OF WEEKEND DAYS _____

NUMBER OF WEEK DAYS _____

3a. Are there **other pools or other rivers or lakes** where you do the same type of boating you do on the Pools 7 and 8? If there are, please list them below.

b. About how many days do you boat at these **other places** in a typical year? _____ DAYS

Next, please tell us about your boating experience the last day you boated on Pools 7 or 8.

4a. What was the last day you boated on Pools 7 or 8? If you are unsure of the day, just indicate the month and year.

MONTH

DAY

YEAR

b. Was that a week day or a weekend day? (circle one) WEEKDAY WEEKEND DAY

5. What time did you **leave** and what time did you **return** to your dock or boathouse the **last day** you boated? (If you made more than one trip, indicate when you first went out and when you finished boating that day.)

TIME LEFT DOCK _____ AM/PM

TIME RETURNED TO DOCK _____ AM/PM

6a. What type of boat did you use on the river **that day**?

_____ Runabout/Speedboat	_____ House boat	_____ Personal watercraft
_____ Ski boat	_____ Cabin cruiser	_____ Rowboat/Canoe
_____ Fishing boat/Bass boat	_____ Pontoon boat	_____ Sailboat
_____ Other (please describe) _____		

b. If that boat is motorized, what is the total horsepower of the motor(s)? _____ HP

c. What is the length of that boat? _____ FEET

7. What percent of your time did you spend on the following activities while recreating on Pools 7 and 8 **the last time out**?

Fishing	_____ %	Cruising	_____ %
Water Skiing	_____ %	Swimming	_____ %
Relaxing/Sunning in boat	_____ %	Using Beach Site	_____ %
Other activities (describe below)	_____ %		

(TOTAL SHOULD = 100%)

8. If you used a beach site, check the activities in the following list that you did there:

Group get-together/party	_____	Swimming	_____
Relaxing/Sunning	_____	Camping (tent or boat)	_____
Picknicking	_____	Other (please describe)	_____

9. What percent of your time did you spend in the **main channel**, the **Black River**, and **backwaters** during your last time out in the boat?

MAIN CHANNEL _____ % BLACK RIVER _____ % BACKWATERS _____ %

Finally, please tell us how you feel about boating conditions on Pools 7 and 8.

10. Do you have a **favorite** place or places to go on Pools 7 and 8? If you do, please name it or, if you can't name it, describe that location below.

Why is that/are those your favorite place(s)? (PLEASE BE AS SPECIFIC AS POSSIBLE WITH YOUR EXPLANATION)

11. Are there any parts of Pools 7 and 8 you deliberately **avoid**? If there are, please name them or, if you can't name them, describe the locations below.

Why do you avoid that/those parts of the river? (PLEASE BE AS SPECIFIC AS POSSIBLE WITH YOUR EXPLANATION.)

12. What do you **like the best** about Pools 7 and 8?

- 13a. Have you noticed any **positive or negative changes** on Pools 7 or 8 in the last **five** years? If you have, please describe the changes below.

- b. If you noticed changes, have these changes affected your **enjoyment or use** of Pools 7 and 8? Please describe any effects below.

14. Are there changes you would **like to see** on Pools 7 and 8? If there are, please describe them below.

15. Did you **expect to see** ABOUT AS MANY, MORE, or FEWER boats than you saw the last day you boated on Pools 7 or 8? (circle one)

16. Would you **like to have seen** ABOUT AS MANY, MORE, or FEWER boats than saw the last day you boated on Pools 7 or 8? (circle one)

17a. Did you have any problems or conflicts with other visitors while on Pools 7 and 8?
If yes, please describe the problems below. (PLEASE BE SPECIFIC.)

b. Did you have any problems with tow boats while on Pools 7 and 8?
(PLEASE DESCRIBE BELOW.)

c. Did you see or experience any accidents or safety hazards while on Pools 7 and 8?
(PLEASE DESCRIBE BELOW.)

d. Did you have any other problems during your last time out on Pools 7 and 8?
(PLEASE DESCRIBE BELOW.)

18. Are there any additional comments you would like to make concerning the management of Pools 7 and 8 of the Upper Mississippi?

THANK YOU FOR YOUR PARTICIPATION IN THE SURVEY!

**PLEASE INSERT THE COMPLETED QUESTIONNAIRE IN THE ENCLOSED POSTAGE-PAID
ENVELOPE AND MAIL IT BACK TO US.**

UPPER MISSISSIPPI RIVER BOATER SURVEY
POOLS 7 AND 8 - MARINA BOATERS

Q. NO. _____
OMB #0710-0001
Expires 30 Nov 95

First, please tell us about your past experience on Pools 7 and 8, and how much you use the river.

How many years have you been boating on Pools 7 and 8 of the Mississippi? _____ YEARS
(IF 1994 IS YOUR FIRST YEAR, THE ANSWER SHOULD BE "<1")

- a. About how many days do you boat on Pools 7 and 8 in a typical year? _____ DAYS
b. How many of those days would be weekend days and how many would be weekdays?

NUMBER OF WEEKEND DAYS _____
NUMBER OF WEEK DAYS _____

- 3a. Are there **other pools or other rivers or lakes** where you do the same type of boating you do on Pools 7 and 8? If there are, please list them below.

- b. About how many days do you boat at these **other places** in a typical year? _____ DAYS
4. How far is the marina where you keep your boat from your home? _____ MILES

Next, please tell us about your boating experience the last day you boated on Pools 7 or 8.

- 5a. What was the last day you boated on Pools 7 or 8? If you are unsure of the day, just indicate the month and year.

MONTH DAY YEAR

- b. Was that a week day or a weekend day? (circle one) WEEKDAY WEEKEND DAY
6. What time did you **leave** and what time did you **return** to your slip the **last day** you boated?
(If you made more than one trip, indicate when you first went out and when you finished boating.)

TIME LEFT SLIP _____ AM/PM TIME RETURNED TO SLIP _____ AM/PM

- 7a. What type of boat did you use on the river **that day**? (Check one)

_____ Runabout/Speedboat	_____ House boat	_____ Personal watercraft
_____ Ski boat	_____ Cabin cruiser	_____ Rowboat/Canoe
_____ Fishing boat/Bass boat	_____ Pontoon boat	_____ Sailboat Other: _____

b. If that boat is motorized, what is the total horsepower of the motor(s)? _____ HP

c. What is the length of that boat? _____ FEET

8. What percent of your time did you spend on the following activities while recreating on the last time out?

Fishing	_____ %	Cruising	_____ %
Water Skiing	_____ %	Swimming	_____ %
Relaxing/Sunning in boat	_____ %	Using Beach Site	_____ %
Other activities (describe below)	_____ %		

(TOTAL SHOULD = 100%)

9. If you used a beach site, check the activities in the following list that you did there:

Group get-together/party	_____	Swimming	_____
Relaxing/Sunning	_____	Camping (tent or boat)	_____
Picknicking	_____	Other (please describe)	_____

10. What percent of your time did you spend in the main channel, the Black River, and backwaters during your last time out in the boat?

MAIN CHANNEL _____ % BLACK RIVER _____ % BACKWATERS _____ %

In this final section, please tell us how you feel about boating conditions on Pools 7 and 8.

11. Do you have a favorite place or places to go on Pools 7 and 8? If you do, please name or, if you can't name it, describe that location below.

Why is that/are those your favorite place(s)? (PLEASE BE AS SPECIFIC AS POSSIBLE WITH YOUR EXPLANATION)

12. Are there any parts of Pools 7 and 8 you deliberately avoid? If there are, please name them or, if you can't name them, describe the locations below.

Why do you avoid that/those parts of the river? (PLEASE BE AS SPECIFIC AS POSSIBLE WITH YOUR EXPLANATION.)

13. What do you like the best about Pools 7 and 8?

14. Have you noticed any **positive or negative changes** on Pools 7 or 8 in the last **five** years? If you have, please describe the changes below.

1.

2.

15. If you noticed changes, have these changes affected your **enjoyment or use** of Pools 7 and 8? Please describe any effects below.

15. Are there changes you would **like to see** on Pools 7 and 8? If there are, please describe them below.

16. Did you **expect to see** ABOUT AS MANY, MORE, or FEWER boats than you saw the last day you boated on Pools 7 or 8? (circle one)

17. Would you **like to have seen** ABOUT AS MANY, MORE, or FEWER boats than you saw the last day you boated on Pools 7 or 8? (circle one)

18a. Did you have any problems or conflicts with other visitors while on Pools 7 and 8? If yes, please describe the problems below. (PLEASE BE SPECIFIC.)

b. Did you have any problems with tow boats while on Pools 7 and 8? (PLEASE DESCRIBE BELOW.)

- c. Did you see or experience any accidents or safety hazards while on Pools 7 and 8?
(PLEASE DESCRIBE BELOW.)

- d. Did you have any other problems during your last time out on Pools 7 and 8?
(PLEASE DESCRIBE BELOW.)

19. Are there any additional comments you would like to make concerning the management of Pools 7 and 8 of the Upper Mississippi?

THANK YOU FOR YOUR PARTICIPATION IN THE SURVEY!

**PLEASE INSERT THE COMPLETED QUESTIONNAIRE IN THE ENCLOSED POSTAGE-PAID
ENVELOPE AND MAIL IT BACK TO US.**

LOCK USER PRELIMINARY SURVEY CARD

STUDY OF RECREATION ON POOLS 7 AND 8 OF THE UPPER MISSISSIPPI RIVER

- US ARMY CORPS OF ENGINEERS
- WISCONSIN DNR • MINNESOTA DNR
- US FISH AND WILDLIFE SERVICE • US PARK SERVICE
- MINNESOTA-WISCONSIN BOUNDARY COMMISSION

Hello. We are conducting a survey of boaters on Pools 7 and 8 of the Mississippi River this summer. We would like to include in our survey boaters who use Pools 7 and 8 but who launch or keep their boat in a slip outside those pools. To help us with this study, please answer the following questions and provide your address, if applicable.

1) In which pool of the river did this boat trip originate?

POOL _____

2) How often do you use this lock?
(please check one)

- ☐ Every time I boat on the river
- ☐ Most times I boat on the river
- ☐ Occasionally
- ☐ Rarely

3) How often do you boat on the Mississippi River?
(please check one)

- ☐ Every week
- ☐ At least a couple of times a month
- ☐ Once a month
- ☐ Just a few times each year

4) If you dock your boat or launched **outside Pools 7 and 8** this trip, please provide your name and address:

Name Street City Zip Code

THANK YOU !

UPPER MISSISSIPPI RIVER BOATER SURVEY
POOLS 7 AND 8 - LOCK USERS

Q. NO. _____
OMB #0710-0001
Expires 30 Nov 95

First, please tell us about your past experience on the Mississippi, and how much you use the river.

1. How many years have you been boating on the Mississippi River? _____ YEARS
(IF 1994 IS YOUR FIRST YEAR, THE ANSWER SHOULD BE "<1")
- 2a. About how many days do you boat on Pools 7 and/or 8 in a typical year? _____ DAYS
- b. How many of those days would be weekend days and how many would be weekdays?

NUMBER OF WEEKEND DAYS _____
NUMBER OF WEEK DAYS _____

3. Please list the Pool or Pools of the Mississippi River you use most often.

- 4a. Are there **other rivers or lakes** where you do the same type of boating you do on Pools 7 and 8?
If there are, please list them below.

- b. About how many days do you boat at these **other places** in a typical year? _____ DAYS

5. How far is your boat slip or the launch ramp you most frequently use from your home? _____ MILES

Next, please tell us about your boating experience the last day you boated on Pools 7 or 8.

- 6a. What was the last day you boated on Pools 7 or 8? If you are unsure of the day, just indicate the month and year.

MONTH DAY YEAR

- b. Was that a week day or a weekend day? (circle one) WEEKDAY WEEKEND DAY

- 7a. On that boat trip, were you **passing through** both pools from further up or downriver or was Pool 7 or 8 your **primary destination** that trip? (please check one)

PASSING THROUGH _____ PRIMARY DESTINATION _____

- b. Did you spend more than one day (i.e., stay overnight) on Pool 7 and/or 8? YES NO
If yes, how many days did you spend on Pools 7 and 8? _____ DAYS

8a. What type of boat did you use on the river **that day**? (Check one)

<input type="checkbox"/> Runabout/Speedboat	<input type="checkbox"/> House boat	<input type="checkbox"/> Personal watercraft
<input type="checkbox"/> Ski boat	<input type="checkbox"/> Cabin cruiser	<input type="checkbox"/> Rowboat/Canoe
<input type="checkbox"/> Fishing boat/Bass boat	<input type="checkbox"/> Pontoon boat	<input type="checkbox"/> Sailboat
		Other: _____

b. If that boat is motorized, what is the total horsepower of the motor(s)? _____ HP

c. What is the length of that boat? _____ FEET

9. On **the last day** you spent boating on Pools 7 and/or 8, what percent of your time did you spend on the following activities?

Fishing	_____ %	Cruising	_____ %
Water Skiing	_____ %	Swimming	_____ %
Relaxing/Sunning in boat	_____ %	Using Beach Site	_____ %
Other activities (describe below)	_____ %		

(TOTAL SHOULD = 100%)

10. If you used a beach site, check the activities in the following list that you did there:

Group get-together/party	_____	Swimming	_____
Relaxing/Sunning	_____	Camping (tent or boat)	_____
Picknicking	_____	Other (please describe)	_____

11. What percent of your time did you spend in the **main channel**, the **Black River**, and **backwaters** during your last day on Pools 7 and/or 8?

MAIN CHANNEL _____ % BLACK RIVER _____ % BACKWATERS _____ %

In this section, please tell us how you feel about boating conditions on Pools 7 and 8.
(SKIP QUESTIONS 11-15 IF YOU FEEL YOU HAVE BEEN ON POOLS 7 AND 8 TOO FEW TIMES
OR ARE TOO INFREQUENT A VISITOR TO THOSE POOLS TO COMMENT)

12. Do you have a **favorite** place or places to go on Pools 7 and 8? If you do, please name or, if you can't name it, describe that location below.

Why is that/are those your favorite place(s)? (PLEASE BE AS SPECIFIC AS POSSIBLE WITH YOUR EXPLANATION)

13. Are there any parts of Pools 7 and 8 you deliberately **avoid**? If there are, please name them or, if you can't name them, describe the locations below.

Why do you avoid that/those parts of the river? (PLEASE BE AS SPECIFIC AS POSSIBLE WITH YOUR EXPLANATION.)

4. What do you **like the best** about Pools 7 and 8?

- 5a. Have you noticed any **positive or negative changes** on Pools 7 or 8 in the last **five** years? If you have, please describe the changes below.

- a. If you noticed changes, have these changes affected your **enjoyment or use** of Pools 7 and 8? Please describe any effects below.

- Are there changes you would **like to see** on Pools 7 and 8? If there are, please describe them below.

Finally, please answer the following questions regarding use levels and conflicts.

17. Did you expect to see ABOUT AS MANY, MORE, or FEWER boats than you saw the last day you boated on Pools 7 or 8? (circle one)

18. Would you like to have seen ABOUT AS MANY, MORE, or FEWER boats than you saw the last day you boated on Pools 7 or 8? (circle one)

19a. Did you have any problems or conflicts with other visitors while on Pools 7 and 8? If yes, please describe the problems below. (PLEASE BE SPECIFIC.)

b. Did you have any problems with tow boats while on Pools 7 and 8? (PLEASE DESCRIBE BELOW.)

c. Did you see or experience any accidents or safety hazards while on Pools 7 and 8? (PLEASE DESCRIBE BELOW.)

d. Did you have any other problems during your last time out on Pools 7 and 8? (PLEASE DESCRIBE BELOW.)

20. Are there any additional comments you would like to make concerning the management of Pools 7 and 8 of the Upper Mississippi?

THANK YOU FOR YOUR PARTICIPATION IN THE SURVEY!

PLEASE INSERT THE COMPLETED QUESTIONNAIRE IN THE ENCLOSED POSTAGE-PAID ENVELOPE AND MAIL IT BACK TO US.



US Army Corps
of Engineers
St Paul District

U.S. Army Corps of Engineers
St. Paul District
Mississippi River Area Office
300 South First Street
La Crescent, Minnesota 55947

July 22, 1994

Dear Marina/Boat Club Boater:

The managers of the Mississippi River are interested in learning more about your boating experience and your perceptions about the quality of boating on the river. Knowing how boaters like yourself use the river and how you perceive present conditions is essential information for making good management decisions. A study to gather this information is being conducted on Pools 7 and 8 of the Mississippi River this summer on behalf of the US Army Corps of Engineers, Wisconsin DNR, Minnesota DNR, US Fish and Wildlife Service, US Park Service, and the Minnesota-Wisconsin Boundary Commission.

We would greatly appreciate your taking a few minutes to complete the enclosed questionnaire relating to your use and opinions of present conditions on Pools 7 and 8 of the Mississippi. If you no longer boat on the Mississippi, do not fill out the questionnaire but please return it to us with a note to that effect on the top.

Please place your completed questionnaire in the enclosed postage-paid envelope and return it to us as quickly as possible. Any information you provide will be **strictly confidential**. Each questionnaire has an identification number on it to allow us to keep track of questionnaires mailed out and returned. However, your name will never be placed on the questionnaire or reported in any way.

If you would like a copy of a report synopsis when this study is completed, please write your name and address on a separate piece of paper and enclose it in the return envelope along with your questionnaire.

The managers of the river want to continue to provide opportunities for enjoyable boating; to do this they need to understand what is important to the experience you seek when you boat on the river. Your help in providing this information is greatly appreciated.

Sincerely,

James J. Vogel
Study Coordinator

F21



US Army Corps
of Engineers
St Paul District

U.S. Army Corps of Engineers
St. Paul District
Mississippi River Area Office
300 South First Street
La Crescent, Minnesota 55947

August 5, 1994

Dear Marina/Boat Club Boater:

About two weeks ago we sent you a questionnaire about your boating experiences and perceptions of the quality of boating on Pools 7 and 8 of the Mississippi River. If you have already completed and returned your questionnaire, we thank you for your prompt response. If you have not completed the survey, would you please take the time to do so today?

If our results are to be as useful as possible, it is important that each questionnaire be completed and returned. Remember, all responses will be summarized and handled in strict confidentiality. Even if you no longer boat on the Mississippi, please return the blank questionnaire to us with a note stating that fact.

A copy of the questionnaire and a return envelope are enclosed in case you did not receive or misplaced the original materials we sent you.

Your cooperation is greatly appreciated.

Sincerely,

James J. Vogel
Study Coordinator

REMINDER POSTCARD USED FOR MAIL SURVEYS

Dear Boater:

July 25, 1994

Recently you received a survey regarding your boating activity and your perceptions of boating conditions on Pools 7 and 8 of the Mississippi River. If you have already completed and returned the survey, we greatly appreciate the time and effort you took to participate. Your participation will help guide future planning and management on the Mississippi River.

If you have not completed and returned the survey, we urge you to take a few minutes to do so now. In order to gather the most valid and useful information, we need to hear from everyone in our sample. Remember, your responses are totally anonymous.

Thank you again for your participation in this very important effort.

Sincerely,

James Vogel

Appendix G

Participating Agencies and Members of the River Resources Forum Recreation Work Group (RWG)

Note: This list is taken from a mailing list revised 9/29/94; additions and deletions to the roster of RWG members may have occurred since that date.

US Army Corps of Engineers, St. Paul District

St. Paul District Office

Bruce Carlson, PE-P

Navigation Section, Fountain City, WI

Steve Tapp

Mississippi River Area Office

Richard Otto

Kevin Berg

Gerry Lee

US Fish and Wildlife Service (Upper Mississippi River National Wildlife and Fish Refuge)

Refuge Headquarters - Winona, MN

Hank Schneider

La Crosse, WI District Office

Nancy Haugen

National Park Service

Mississippi National River and Recreation Area

Mike Madell

St. Croix National Scenic Riverway

Henry Hughlett

Minnesota Department of Natural Resources

Division of Waters

Alan Robbins-Fenger

Wisconsin Department of Natural Resources

La Crosse District Office

Gretchen Benjamin

Minnesota-Wisconsin Boundary Area Commission

Eric MacBeth

Appendix H
Frequency Tables and Descriptive Statistics for
Boater Group Profile Data

Pools 7 and 8 - Ramp Users

Variable PARTYSIZE.....Number of people in boaters' group.

	PARTYSIZE	
	Count	Percent
1	57	17.0%
2	133	39.7%
3	65	19.4%
4	39	11.6%
5	15	4.5%
6	12	3.6%
7	7	2.1%
8	4	1.2%
9	1	.3%
14	1	.3%
20	1	.3%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
PARTYSIZE	2.82	1.91	335

Variable YEARS.....Number of years respondent has boated on Pools 7 and 8.

	YEARS	
	Count	Percent
0	15	4.5%
1	15	4.5%
2	8	2.4%
3	15	4.5%
4	16	4.8%
5	17	5.1%
6	9	2.7%
7	7	2.1%
8	7	2.1%
9	6	1.8%
10	21	6.3%
11	3	.9%
12	8	2.4%
13	4	1.2%
14	3	.9%
15	33	9.9%
16	3	.9%
17	1	.3%
18	2	.6%
20	39	11.6%
21	2	.6%
22	2	.6%
23	2	.6%
24	3	.9%
25	20	6.0%
26	1	.3%
27	3	.9%
30	20	6.0%
34	2	.6%
35	12	3.6%
38	1	.3%
40	12	3.6%
41	2	.6%
43	1	.3%
45	4	1.2%
50	10	3.0%
54	2	.6%
55	1	.3%
60	2	.6%
• (no data)	1	.3%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
YEARS	17.22	13.76	334

Variable TOTDAYS.....Total number of days respondent boats on Pools 7 and 8 in a typical year.

	TOTDAYS	
	Count	Percent
0	15	4.5%
1	4	1.2%
2	6	1.8%
3	6	1.8%
4	9	2.7%
5	7	2.1%
6	4	1.2%
8	5	1.5%
9	5	1.5%
10	17	5.1%
12	9	2.7%
13	3	.9%
14	2	.6%
15	14	4.2%
16	4	1.2%
17	2	.6%
18	3	.9%
20	26	7.8%
23	1	.3%
24	7	2.1%
25	10	3.0%
26	1	.3%
30	34	10.1%
32	4	1.2%
35	11	3.3%
36	2	.6%
40	16	4.8%
45	8	2.4%
48	3	.9%
50	21	6.3%
55	1	.3%
60	5	1.5%
70	6	1.8%
72	4	1.2%
75	7	2.1%
80	5	1.5%
84	2	.6%
90	2	.6%
96	1	.3%
98	1	.3%
100	17	5.1%
110	1	.3%
120	3	.9%
150	11	3.3%
175	1	.3%
180	1	.3%
200	7	2.1%
• (no data)	1	.3%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
TOTDAYS	41.35	43.19	334

Variable WEEKDAY.....Number of weekdays respondent boats on Pools 7 and 8 in a typical year.

	WEEKDAY	
	Count	Percent
0	83	24.8%
1	11	3.3%
2	15	4.5%
3	8	2.4%
4	7	2.1%
5	26	7.8%
6	6	1.8%
7	3	.9%
8	8	2.4%
9	5	1.5%
10	18	5.4%
11	1	.3%
12	6	1.8%
13	3	.9%
14	1	.3%
15	12	3.6%
16	3	.9%
17	2	.6%
18	1	.3%
20	18	5.4%
22	3	.9%
23	2	.6%
24	1	.3%
25	8	2.4%
27	1	.3%
30	15	4.5%
32	1	.3%
33	1	.3%
34	2	.6%
35	5	1.5%
37	2	.6%
40	8	2.4%
42	2	.6%
45	1	.3%
46	1	.3%
48	1	.3%
50	8	2.4%
55	1	.3%
60	7	2.1%
65	1	.3%
66	1	.3%
70	2	.6%
72	1	.3%
75	2	.6%
80	1	.3%
90	1	.3%
96	1	.3%
98	1	.3%
100	3	.9%

(continued)

	WEEKDAY	
	Count	Percent
106	1	.3%
120	1	.3%
130	2	.6%
133	1	.3%
135	1	.3%
140	1	.3%
144	2	.6%
150	3	.9%
175	1	.3%
• (no data)	1	.3%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
WEEKDAY	20.73	31.63	334

Variable WEEKEND.....Number of weekend days respondent boats on Pools 7 and 8
in a typical year.

	WEEKEND	
	Count	Percent
0	43	12.8%
1	4	1.2%
2	11	3.3%
3	7	2.1%
4	11	3.3%
5	20	6.0%
6	8	2.4%
7	9	2.7%
8	9	2.7%
9	5	1.5%
10	19	5.7%
11	2	.6%
12	10	3.0%
13	3	.9%
14	3	.9%
15	14	4.2%
16	3	.9%
17	3	.9%
18	3	.9%
20	23	6.9%
21	1	.3%
23	6	1.8%
24	8	2.4%
25	13	3.9%
26	1	.3%
27	1	.3%
28	2	.6%
29	1	.3%
30	31	9.3%
32	2	.6%
33	1	.3%
34	1	.3%
35	5	1.5%
37	1	.3%
38	4	1.2%
40	7	2.1%
42	2	.6%
43	1	.3%
44	1	.3%
45	2	.6%
50	7	2.1%
56	2	.6%
58	1	.3%
60	3	.9%
62	1	.3%
67	1	.3%
70	3	.9%
72	1	.3%
75	4	1.2%

(continued)

	WEEKEND	
	Count	Percent
80	3	.9%
95	1	.3%
100	2	.6%
110	1	.3%
120	1	.3%
140	1	.3%
147	1	.3%
• (no data)	1	.3%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
WEEKEND	20.65	22.76	334

Variable MILES.....Distance boater traveled to access point from home.

	MILES	
	Count	Percent
0	1	.3%
1	42	12.5%
2	37	11.0%
3	20	6.0%
4	25	7.5%
5	29	8.7%
6	8	2.4%
7	11	3.3%
8	13	3.9%
9	3	.9%
10	24	7.2%
11	3	.9%
12	9	2.7%
13	1	.3%
14	3	.9%
15	10	3.0%
16	1	.3%
17	1	.3%
18	1	.3%
19	1	.3%
20	1	.3%
21	10	3.0%
22	1	.3%
23	1	.3%
24	1	.3%
25	1	.3%
26	6	1.8%
28	1	.3%
30	1	.3%
31	13	3.9%
35	1	.3%
38	7	2.1%
40	1	.3%
45	1	.3%
50	2	.6%
60	4	1.2%
63	1	.3%
70	1	.3%
75	3	.9%
100	2	.6%
115	1	.3%
125	1	.3%
130	1	.3%
134	2	.6%
150	1	.3%
160	4	1.2%
175	1	.3%
180	1	.3%
200	1	.3%
	3	.9%

(continued)

	MILES	
	Count	Percent
220	3	.9%
224	1	.3%
225	1	.3%
240	2	.6%
265	1	.3%
275	1	.3%
280	1	.3%
300	4	1.2%
650	1	.3%
750	1	.3%
1000	1	.3%
• (no data)	1	.3%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
MILES	35.34	94.88	334

Variable DAYS.....Length of boaters' current visit to Pools 7 and 8 (multiple-day visits only; all others were one-day visitors).

	DAYS	
	Count	Percent
2	19	38.8%
3	16	32.7%
4	4	8.2%
5	6	12.2%
7	3	6.1%
8	1	2.0%
Total	49	100.0%

	Average	Std Deviation	Valid Cases
DAYS	3.29	1.55	49

Variable HOURS.....Number of hours spent on Pools 7 and 8 on day of interview.

	HOURS	
	Count	Percent
• (no data)	6	1.8%
.25	1	.3%
.50	2	.6%
.52	1	.3%
.75	2	.6%
1.00	7	2.1%
1.25	8	2.4%
1.50	8	2.4%
1.75	10	3.0%
2.00	8	2.4%
2.15	1	.3%
2.25	10	3.0%
2.50	11	3.3%
2.75	12	3.6%
3.00	17	5.1%
3.25	15	4.5%
3.50	11	3.3%
3.75	16	4.8%
4.00	19	5.7%
4.25	14	4.2%
4.50	7	2.1%
4.75	9	2.7%
5.00	8	2.4%
5.25	11	3.3%
5.50	18	5.4%
5.75	10	3.0%
6.00	8	2.4%
6.25	11	3.3%
6.50	11	3.3%
6.52	1	.3%
6.75	4	1.2%
7.00	8	2.4%
7.25	5	1.5%
7.50	3	.9%
7.75	4	1.2%
8.00	7	2.1%
8.25	3	.9%
8.50	2	.6%
8.75	3	.9%
9.00	4	1.2%
9.25	4	1.2%
9.50	2	.6%
9.75	1	.3%
10.50	1	.3%
11.00	2	.6%
11.50	1	.3%
11.75	1	.3%

(continued)

	HOURS	
	Count	Percent
12.25	2	.6%
12.75	1	.3%
13.75	1	.3%
14.00	1	.3%
18.75	1	.3%
19.25	1	.3%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
HOURS	4.76	2.74	329

Variable HP.....Horsepower of boat.

	HP	
	Count	Percent
0 (unpowered boats)	7	2.1%
5	2	.6%
6	4	1.2%
7	1	.3%
9	2	.6%
10	7	2.1%
12	1	.3%
15	11	3.3%
18	6	1.8%
20	15	4.5%
25	33	9.9%
30	24	7.2%
33	2	.6%
35	16	4.8%
40	23	6.9%
45	2	.6%
50	12	3.6%
55	7	2.1%
60	9	2.7%
63	1	.3%
65	4	1.2%
70	12	3.6%
72	1	.3%
75	6	1.8%
80	5	1.5%
85	9	2.7%
90	11	3.3%
100	3	.9%
110	2	.6%
115	14	4.2%
120	5	1.5%
125	4	1.2%
128	2	.6%
130	8	2.4%
135	2	.6%
140	5	1.5%
150	17	5.1%
165	2	.6%
170	4	1.2%
175	5	1.5%
190	1	.3%
200	2	.6%
205	2	.6%
210	1	.3%
220	1	.3%
230	3	.9%
234	1	.3%
235	2	.6%
240	1	.3%

(continued)

	HP	
	Count	Percent
250	3	.9%
260	3	.9%
285	1	.3%
300	2	.6%
305	1	.3%
330	1	.3%
370	1	.3%
464	1	.3%
• (no data)	2	.6%
Total	333	100.0%

	Average	Std Deviation	Valid Cases
HP	78.50	71.87	333

Variable FISH.....Percentage of time boater spent fishing.

	FISH	
	Count	Percent
0 (did not fish)	148	44.2%
5	1	.3%
10	12	3.6%
20	1	.3%
25	1	.3%
30	2	.6%
33	1	.3%
50	10	3.0%
60	3	.9%
70	1	.3%
75	2	.6%
80	1	.3%
85	1	.3%
90	4	1.2%
95	2	.6%
100	145	43.3%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
FISH	87.58	27.11	187

Note: Statistics include only those respondents who participated in the activity.

Variable CRUISE.....Percentage of time boater spent cruising.

	CRUISE	
	Count	Percent
0 (did not cruise)	188	56.1%
5	6	1.8%
10	12	3.6%
15	4	1.2%
20	8	2.4%
25	11	3.3%
30	6	1.8%
33	2	.6%
34	6	1.8%
40	3	.9%
45	1	.3%
50	21	6.3%
60	5	1.5%
70	3	.9%
75	5	1.5%
80	9	2.7%
90	5	1.5%
98	1	.3%
100	39	11.6%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
CRUISING	56.89	34.01	147

Note: Statistics include only those respondents who participated in the activity.

Variable WSKI.....Percentage of time boater spent waterskiing.

	WSKI	
	Count	Percent
0 (did not waterski)	295	88.1%
2	1	.3%
5	2	.6%
10	7	2.1%
15	1	.3%
20	3	.9%
25	4	1.2%
30	3	.9%
33	4	1.2%
34	2	.6%
50	1	.3%
60	1	.3%
70	1	.3%
75	3	.9%
90	3	.9%
100	4	1.2%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
WSKI	40.55	32.21	40

Note: Statistics include only those respondents who participated in the activity.

Variable BEACH.....Percentage of time boater spent using beach site(s) .

	BEACH	
	Count	Percent
0 (did not use beach)	236	70.4%
10	9	2.7%
15	1	.3%
20	9	2.7%
25	7	2.1%
30	5	1.5%
33	6	1.8%
40	2	.6%
50	17	5.1%
60	4	1.2%
66	1	.3%
70	7	2.1%
75	8	2.4%
80	9	2.7%
90	4	1.2%
95	2	.6%
100	8	2.4%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
BEACH	52.57	28.28	99

Note: Statistics include only those respondents who participated in the activity.

Variable OTHER.....Percentage of time boater spent on "other" (unlisted) activities.

	OTHER	
	Count	Percent
0 (didn't do "other")	307	91.6%
5	1	.3%
10	1	.3%
15	1	.3%
20	2	.6%
25	2	.6%
33	1	.3%
45	1	.3%
50	2	.6%
60	1	.3%
90	2	.6%
95	1	.3%
100	13	3.9%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
OTHER	69.04	36.46	28

Note: Statistics include only those respondents who participated in the activity.

Variable MAINCH.....Percentage of time boater spent on main channel.

	MAINCH	
	Count	Percent
0	125	37.3%
1	5	1.5%
2	5	1.5%
3	2	.6%
5	33	9.9%
10	20	6.0%
15	5	1.5%
20	8	2.4%
25	9	2.7%
30	4	1.2%
33	2	.6%
40	3	.9%
45	1	.3%
50	20	6.0%
60	5	1.5%
65	1	.3%
70	3	.9%
75	8	2.4%
80	6	1.8%
85	2	.6%
90	6	1.8%
95	3	.9%
97	1	.3%
98	1	.3%
99	1	.3%
100	56	16.7%
Total	335	100.0%

	Average	Std Deviation	Valid Cases
MAINCH	32.06	39.85	335

Pools 7 and 8 - Marina Boaters

Variable YEARS...Number of years respondent has boated on Pools 7 and 8.

	YEARS	
	Count	Percent
0	3	1.3%
1	6	2.7%
2	5	2.2%
3	13	5.8%
4	14	6.3%
5	14	6.3%
6	8	3.6%
7	6	2.7%
8	6	2.7%
9	3	1.3%
10	16	7.1%
11	2	.9%
12	9	4.0%
14	5	2.2%
15	13	5.8%
16	6	2.7%
17	2	.9%
18	8	3.6%
19	1	.4%
20	15	6.7%
21	1	.4%
22	4	1.8%
23	3	1.3%
24	4	1.8%
25	8	3.6%
26	1	.4%
27	1	.4%
30	12	5.4%
31	1	.4%
32	4	1.8%
34	3	1.3%
35	7	3.1%
37	1	.4%
38	2	.9%
39	1	.4%
40	6	2.7%
45	2	.9%
50	3	1.3%
52	1	.4%
54	1	.4%
70	1	.4%
81	1	.4%
•	1	.4%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
YEARS	16.93	13.54	223

Variable TOTDAYS...Total number of days respondent boats on Pools 7 and 8 during a typical year.

	TOTDAYS	
	Count	Percent
2	1	.4%
3	4	1.8%
5	5	2.2%
6	3	1.3%
7	2	.9%
8	3	1.3%
10	13	5.8%
12	4	1.8%
14	1	.4%
15	9	4.0%
17	1	.4%
18	2	.9%
20	27	12.1%
24	3	1.3%
25	13	5.8%
26	1	.4%
30	32	14.3%
32	2	.9%
35	8	3.6%
36	1	.4%
39	1	.4%
40	21	9.4%
45	4	1.8%
48	1	.4%
50	13	5.8%
51	1	.4%
55	2	.9%
56	1	.4%
60	12	5.4%
64	2	.9%
65	3	1.3%
70	3	1.3%
72	1	.4%
75	2	.9%
80	1	.4%
90	3	1.3%
92	1	.4%
100	4	1.8%
120	3	1.3%
137	1	.4%
140	2	.9%
150	2	.9%
180	1	.4%
190	1	.4%
• (no data)	3	1.3%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
TOTDAYS	38.53	31.59	221

Variable WEEKEND...Number of weekend days respondent boats on Pools 7 and 8 in a typical year.

	WEEKEND	
	Count	Percent
0	6	2.7%
1	2	.9%
2	4	1.8%
3	5	2.2%
4	3	1.3%
5	13	5.8%
6	5	2.2%
7	4	1.8%
8	6	2.7%
9	1	.4%
10	20	8.9%
12	7	3.1%
14	2	.9%
15	18	8.0%
16	2	.9%
17	1	.4%
18	3	1.3%
20	29	12.9%
22	2	.9%
23	2	.9%
24	4	1.8%
25	12	5.4%
26	2	.9%
28	3	1.3%
30	16	7.1%
34	1	.4%
35	6	2.7%
36	5	2.2%
37	1	.4%
38	1	.4%
40	1	.4%
42	14	6.3%
45	1	.4%
48	3	1.3%
50	2	.9%
52	8	3.6%
56	1	.4%
60	2	.9%
• (no data)	4	1.8%
	3	1.3%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
WEEKEND	21.36	14.66	221

Variable WEEKDAYS...Number of weekdays respondent boats on Pools 7 and 8 in a typical year.

	WEEKDAYS	
	Count	Percent
0	21	9.4%
1	4	1.8%
2	9	4.0%
3	5	2.2%
4	8	3.6%
5	30	13.4%
6	4	1.8%
7	2	.9%
8	2	.9%
10	46	20.5%
12	5	2.2%
13	1	.4%
14	3	1.3%
15	16	7.1%
16	1	.4%
17	2	.9%
18	1	.4%
19	1	.4%
20	15	6.7%
22	2	.9%
23	1	.4%
25	10	4.5%
28	1	.4%
30	3	1.3%
35	3	1.3%
40	5	2.2%
45	1	.4%
50	5	2.2%
55	1	.4%
60	1	.4%
66	2	.9%
72	1	.4%
80	2	.9%
90	1	.4%
99	1	.4%
110	1	.4%
120	2	.9%
128	1	.4%
140	1	.4%
• (no data)	3	1.3%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
WEEKDAYS	17.18	23.24	221

Variable OTDAYS...Number of days respondent boats on other pools, rivers or lakes in a typical year.

	OTDAYS	
	Count	Percent
0	1	.4%
2	8	3.6%
3	5	2.2%
4	6	2.7%
5	13	5.8%
7	6	2.7%
8	2	.9%
9	1	.4%
10	13	5.8%
12	4	1.8%
14	1	.4%
15	2	.9%
20	6	2.7%
25	1	.4%
30	2	.9%
35	1	.4%
40	1	.4%
•*	151	67.4%
Total	224	100.0%

* Respondent did not provide data (3 cases) or does not boat on other pools, rivers, or lakes (148 cases).

	Average	Std Deviation	Valid Cases
OTDAYS	9.44	8.05	73

Note: Statistics include only those respondents who boat on other pools, rivers, or lakes.

Variable MILES...Distance from home (in miles) that boater travels to the marina where their boat is stored.

	MILES	
	Count	Percent
0	14	6.3%
1	8	3.6%
2	25	11.2%
3	30	13.4%
4	16	7.1%
5	29	12.9%
6	11	4.9%
7	6	2.7%
8	11	4.9%
9	1	.4%
10	11	4.9%
11	3	1.3%
12	4	1.8%
13	1	.4%
14	2	.9%
15	11	4.9%
16	1	.4%
17	2	.9%
18	1	.4%
20	5	2.2%
25	2	.9%
30	5	2.2%
45	1	.4%
60	2	.9%
75	1	.4%
95	1	.4%
100	2	.9%
130	1	.4%
134	1	.4%
140	2	.9%
144	1	.4%
145	2	.9%
146	1	.4%
150	2	.9%
160	2	.9%
175	1	.4%
180	1	.4%
190	1	.4%
200	1	.4%
205	1	.4%
250	1	.4%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
MILES	21.46	45.20	224

Variable HOURS...Number of hours boater spent on water last boat outing.

	HOURS	
	Count	Percent
1.00	1	.4%
1.50	4	1.8%
1.75	1	.4%
2.00	10	4.5%
2.50	8	3.6%
2.75	1	.4%
3.00	23	10.3%
3.25	1	.4%
3.50	7	3.1%
4.00	27	12.1%
4.50	6	2.7%
4.75	1	.4%
5.00	26	11.6%
5.50	5	2.2%
6.00	17	7.6%
7.00	12	5.4%
7.50	4	1.8%
8.00	7	3.1%
8.50	2	.9%
9.00	4	1.8%
9.50	1	.4%
10.00	3	1.3%
11.00	4	1.8%
11.50	1	.4%
12.00	1	.4%
12.50	1	.4%
14.50	1	.4%
16.00	1	.4%
20.00	1	.4%
20.50	1	.4%
22.00	3	1.3%
23.00	2	.9%
24.00	2	.9%
25.00	1	.4%
25.50	2	.9%
26.00	2	.9%
27.00	4	1.8%
27.50	1	.4%
28.00	1	.4%
29.00	1	.4%
30.00	2	.9%
31.00	2	.9%
31.50	1	.4%
32.00	1	.4%
32.50	1	.4%
43.00	1	.4%
48.50	1	.4%
50.00	2	.9%
72.00	2	.9%

(continued)

	HOURS	
	Count	Percent
96.00	1	.4%
97.00	1	.4%
162.00	1	.4%
• (no data)	7	3.1%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
HOURS	10.83	17.31	217

Variable HP...Horsepower of boat used during last outing on Pools 7 and 8.

	HP	
	Count	Percent
0 *	12	5.4%
4	3	1.3%
5	1	.4%
8	3	1.3%
10	2	.9%
15	1	.4%
25	1	.4%
35	3	1.3%
40	5	2.2%
50	1	.4%
60	3	1.3%
65	3	1.3%
70	2	.9%
85	2	.9%
90	1	.4%
95	1	.4%
110	1	.4%
115	2	.9%
120	11	4.9%
125	2	.9%
130	4	1.8%
133	1	.4%
135	1	.4%
140	6	2.7%
150	4	1.8%
160	4	1.8%
165	6	2.7%
170	9	4.0%
175	8	3.6%
180	2	.9%
188	7	3.1%
200	7	3.1%
205	3	1.3%
215	1	.4%
220	2	.9%
225	5	2.2%
228	5	2.2%
230	4	1.8%
233	1	.4%
235	4	1.8%
240	4	1.8%
245	1	.4%
250	3	1.3%
255	1	.4%
260	12	5.4%
270	2	.9%
289	1	.4%
290	1	.4%
300	2	.9%

(continued)

	HP	
	Count	Percent
305	1	.4%
318	1	.4%
330	4	1.8%
340	4	1.8%
350	2	.9%
360	2	.9%
376	1	.4%
380	1	.4%
400	4	1.8%
440	2	.9%
450	6	2.7%
460	1	.4%
500	1	.4%
510	1	.4%
520	1	.4%
540	2	.9%
600	1	.4%
610	1	.4%
660	1	.4%
700	5	2.2%
710	1	.4%
• (no data)	10	4.5%
Total	224	100.0%

* unpowered sailboats

	Average	Std Deviation	Valid Cases
HP	213.02	156.40	214

Note: 19 marina boaters reported using more than one boat during their last outing (primary boat was usually a houseboat). Horsepower data is for primary boat only.

Variable LENGTH...Length in feet of boat used during last outing on Pools 7 and 8.

	LENGTH	
	Count	Percent
12.0	1	.4%
14.0	4	1.8%
15.0	6	2.7%
16.0	11	4.9%
16.9	1	.4%
17.0	9	4.0%
17.5	1	.4%
18.0	16	7.1%
18.5	4	1.8%
18.6	1	.4%
18.9	1	.4%
19.0	12	5.4%
19.5	2	.9%
19.8	1	.4%
20.0	14	6.3%
21.0	12	5.4%
21.5	3	1.3%
22.0	13	5.8%
22.5	2	.9%
23.0	7	3.1%
24.0	8	3.6%
24.5	1	.4%
25.0	4	1.8%
26.0	7	3.1%
27.0	6	2.7%
28.0	5	2.2%
30.0	3	1.3%
32.0	2	.9%
33.0	5	2.2%
34.0	6	2.7%
35.0	1	.4%
36.0	9	4.0%
37.0	4	1.8%
38.0	1	.4%
40.0	4	1.8%
41.0	3	1.3%
42.0	8	3.6%
44.0	2	.9%
45.0	4	1.8%
46.0	1	.4%
47.0	2	.9%
49.0	1	.4%
50.0	6	2.7%
52.0	2	.9%
53.0	2	.9%
54.0	1	.4%
56.0	1	.4%
63.0	1	.4%
67.0	1	.4%
71.0	1	.4%
• (no data)	1	.4%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
LENGTH	27.18	11.48	223

Note: 19 marina boaters reported using more than one boat during their last outing (primary boat was usually a houseboat). Length data is for primary boat only.

Variable FISH...Percentage of time boater spent fishing during their last outing on Pools 7 and 8.

	FISH	
	Count	Percent
0 (did not fish)	180	80.4%
1	2	.9%
2	1	.4%
5	5	2.2%
10	12	5.4%
15	1	.4%
20	4	1.8%
25	4	1.8%
30	4	1.8%
50	2	.9%
60	1	.4%
80	1	.4%
85	1	.4%
100	5	2.2%
•*	1	.4%
Total	224	100.0%

* Respondent indicated they spent time fishing but did not provide percentage data.

	Average	Std Deviation	Valid Cases
FISH	29.98	31.94	43

Note: Statistics include only those respondents who participated in the activity.

Variable CRUISE...Percentage of time boater spent cruising during their last outing on Pools 7 and 8.

	CRUISE	
	Count	Percent
0 (did not cruise)	29	12.9%
5	8	3.6%
10	18	8.0%
15	8	3.6%
20	21	9.4%
25	8	3.6%
30	18	8.0%
35	3	1.3%
40	12	5.4%
45	1	.4%
50	17	7.6%
60	5	2.2%
70	5	2.2%
75	1	.4%
80	10	4.5%
84	1	.4%
85	4	1.8%
90	11	4.9%
95	3	1.3%
100	41	18.3%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
CRUISE	52.84	34.48	195

Note: Statistics include only those respondents who participated in the activity.

Variable RELAX...Percentage of time boater spent relaxing or sunning in their boat during their last outing on Pools 7 and 8.

	RELAX	
	Count	Percent
0 (did not relax/sun)	106	47.3%
1	1	.4%
5	5	2.2%
10	17	7.6%
15	5	2.2%
20	17	7.6%
25	5	2.2%
30	13	5.8%
35	1	.4%
40	10	4.5%
45	1	.4%
50	17	7.6%
60	5	2.2%
70	7	3.1%
75	3	1.3%
80	2	.9%
85	1	.4%
90	1	.4%
95	1	.4%
100	5	2.2%
●*	1	.4%
Total	224	100.0%

* Respondent indicated they spent time relaxing or sunning in boat but did not provide percentage data.

	Average	Std Deviation	Valid Cases
RELAX	37.62	25.78	117

Note: Statistics include only those respondents who participated in the activity.

Variable SWIM...Percentage of time boater spent swimming from their boat during their last outing on Pools 7 and 8.

	SWIM	
	Count	Percent
0 (did not swim)	176	78.6%
3	1	.4%
5	11	4.9%
10	19	8.5%
15	1	.4%
20	6	2.7%
25	4	1.8%
30	2	.9%
40	1	.4%
50	1	.4%
70	1	.4%
●*	1	.4%
Total	224	100.0%

* Respondent indicated they spent time swimming but did not provide percentage data.

	Average	Std Deviation	Valid Cases
SWIM	14.96	12.85	47

Note: Statistics include only those respondents who participated in the activity.

Variable WSKI...Percentage of time boater spent waterskiing during their last outing on Pools 7 and 8.

	WSKI	
	Count	Percent
0 (did not waterski)	186	83.0%
2	1	.4%
3	1	.4%
5	4	1.8%
10	13	5.8%
15	1	.4%
20	2	.9%
25	2	.9%
30	4	1.8%
35	1	.4%
40	4	1.8%
50	3	1.3%
60	1	.4%
70	1	.4%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
WSKI	22.50	17.76	38

Note: Statistics include only those respondents who participated in the activity.

Variable BEACH...Percentage of time boater spent using beach site(s) during their last outing on Pools 7 and 8.

	BEACH	
	Count	Percent
0 (did not use beach)	109	48.7%
4	1	.4%
5	4	1.8%
10	22	9.8%
20	10	4.5%
25	10	4.5%
30	10	4.5%
35	2	.9%
40	10	4.5%
50	19	8.5%
60	10	4.5%
70	3	1.3%
75	2	.9%
80	4	1.8%
85	2	.9%
89	1	.4%
90	2	.9%
95	1	.4%
100	1	.4%
●*	1	.4%
Total	224	100.0%

* Respondent indicated they spent time using beach site(s) but did not provide percentage data.

	Average	Std Deviation	Valid Cases
BEACH	37.97	24.59	114

Note: Statistics include only those respondents who participated in the activity.

Variable OTHER...Percentage of time boater spent on "other" activities (not listed on questionnaire) during their last outing on Pools 7 and 8.

	OTHER	
	Count	Percent
0 (did not do "other")	213	95.1%
5	1	9.1%
10	5	45.5%
30	1	9.1%
75	2	18.2%
85	1	9.1%
100	1	9.1%
Total	11	100.0%

	Average	Std Deviation	Valid Cases
OTHER	38.18	37.23	11

Note: Statistics include only those respondents who participated in the activity.

Variable MAINCH...Percentage of time boater spent on the main channel during their last outing on Pools 7 and 8.

	MAINCH	
	Count	Percent
0	27	12.1%
2	2	.9%
5	3	1.3%
10	11	4.9%
20	5	2.2%
25	1	.4%
30	2	.9%
40	4	1.8%
50	12	5.4%
60	7	3.1%
65	1	.4%
70	7	3.1%
75	7	3.1%
80	23	10.3%
85	2	.9%
90	27	12.1%
95	7	3.1%
97	2	.9%
98	3	1.3%
100	71	31.7%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
MIANCH	68.16	37.03	224

Variable BLRIV...Percentage of time spent on the Black River during their last outing on Pools 7 and 8.

	BLRIV	
	Count	Percent
0	119	53.1%
1	1	.4%
2	3	1.3%
3	1	.4%
5	11	4.9%
10	28	12.5%
15	6	2.7%
20	15	6.7%
25	5	2.2%
30	7	3.1%
40	5	2.2%
50	8	3.6%
60	2	.9%
70	2	.9%
80	4	1.8%
90	2	.9%
100	5	2.2%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
BLRIV	13.08	23.04	224

Variable BACK...Percentage of time boater spent in backwater areas during their last outing on Pools 7 and 8.

	BACK	
	Count	Percent
0	138	61.6%
1	2	.9%
2	1	.4%
5	7	3.1%
10	23	10.3%
20	5	2.2%
25	3	1.3%
30	3	1.3%
40	2	.9%
50	2	.9%
60	2	.9%
70	1	.4%
80	4	1.8%
90	10	4.5%
95	1	.4%
96	1	.4%
98	1	.4%
100	18	8.0%
Total	224	100.0%

	Average	Std Deviation	Valid Cases
BACK	18.81	34.44	224

Pools 7 and 8 - Dock/Boathouse Owners

Variable YEARS...Number of years respondent has boated on Pools 7 and 8.

	YEARS	
	Count	Percent
1	3	1.3%
2	2	.9%
3	8	3.4%
4	3	1.3%
5	4	1.7%
6	4	1.7%
7	4	1.7%
8	3	1.3%
9	2	.9%
10	6	2.6%
11	3	1.3%
12	5	2.2%
13	3	1.3%
14	1	.4%
15	14	6.0%
16	2	.9%
17	1	.4%
18	4	1.7%
19	4	1.7%
20	18	7.8%
21	2	.9%
22	5	2.2%
23	3	1.3%
24	1	.4%
25	18	7.8%
26	1	.4%
27	2	.9%
28	2	.9%
30	15	6.5%
31	1	.4%
32	3	1.3%
33	2	.9%
34	3	1.3%
35	17	7.3%
36	3	1.3%
37	1	.4%
38	3	1.3%
39	1	.4%
40	14	6.0%
42	1	.4%
43	2	.9%
44	2	.9%
45	8	3.4%
46	1	.4%
49	1	.4%
50	8	3.4%
52	2	.9%

(continued)

	YEARS	
	Count	Percent
53	1	.4%
54	1	.4%
55	3	1.3%
57	1	.4%
58	1	.4%
60	2	.9%
62	1	.4%
63	1	.4%
65	1	.4%
68	1	.4%
70	1	.4%
• (no data)	2	.9%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
YEARS	26.82	15.54	230

Variable TOTDAYS...Total number of days respondent boats on Pools 7 and 8 during a typical year.

	TOTDAYS	
	Count	Percent
2	2	.9%
3	1	.4%
4	3	1.3%
5	5	2.2%
6	2	.9%
7	1	.4%
8	4	1.7%
10	14	6.0%
12	2	.9%
14	3	1.3%
15	14	6.0%
16	3	1.3%
17	1	.4%
18	1	.4%
20	23	9.9%
21	1	.4%
22	1	.4%
24	3	1.3%
25	16	6.9%
30	30	12.9%
32	1	.4%
35	5	2.2%
36	2	.9%
37	1	.4%
40	16	6.9%
41	1	.4%
45	3	1.3%
48	1	.4%
50	18	7.8%
55	1	.4%
60	12	5.2%
63	1	.4%
65	1	.4%
70	1	.4%
72	1	.4%
75	6	2.6%
80	3	1.3%
90	5	2.2%
100	10	4.3%
104	1	.4%
130	1	.4%
150	1	.4%
180	2	.9%
200	2	.9%
230	1	.4%
240	1	.4%
280	1	.4%
300	2	.9%
• (no data)	1	.4%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
TOTDAYS	44.28	47.41	231

Variable WEEKDAY...Number of weekdays respondent boats on Pools 7 and 8 in a typical year.

	WEEKDAY	
	Count	Percent
0	20	8.6%
1	4	1.7%
2	4	1.7%
3	8	3.4%
4	9	3.9%
5	27	11.6%
6	3	1.3%
7	4	1.7%
8	5	2.2%
9	2	.9%
10	28	12.1%
12	2	.9%
14	4	1.7%
15	14	6.0%
16	3	1.3%
18	2	.9%
19	1	.4%
20	14	6.0%
21	1	.4%
22	1	.4%
24	4	1.7%
25	7	3.0%
27	2	.9%
30	12	5.2%
35	3	1.3%
40	7	3.0%
43	2	.9%
45	3	1.3%
49	1	.4%
50	7	3.0%
52	1	.4%
60	4	1.7%
65	1	.4%
66	1	.4%
75	3	1.3%
80	2	.9%
95	1	.4%
100	1	.4%
144	1	.4%
175	1	.4%
180	1	.4%
200	1	.4%
220	1	.4%
250	1	.4%
280	1	.4%
• (no data)	7	3.0%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
WEEKDAY	24.22	38.73	225

Variable WEEKEND...Number of weekend days respondent boats on Pools 7 and 8 in a typical year.

	WEEKEND	
	Count	Percent
0	16	6.9%
1	4	1.7%
2	8	3.4%
4	3	1.3%
5	11	4.7%
6	5	2.2%
7	4	1.7%
8	5	2.2%
9	4	1.7%
10	20	8.6%
12	5	2.2%
13	1	.4%
14	2	.9%
15	25	10.8%
16	2	.9%
17	3	1.3%
18	5	2.2%
20	32	13.8%
22	1	.4%
23	1	.4%
24	3	1.3%
25	16	6.9%
27	1	.4%
30	18	7.8%
32	3	1.3%
35	3	1.3%
36	4	1.7%
40	6	2.6%
41	1	.4%
45	1	.4%
50	5	2.2%
60	3	1.3%
70	1	.4%
75	1	.4%
97	1	.4%
140	1	.4%
• (no data)	7	3.0%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
WEEKEND	19.01	16.71	225

Variable OTDAYS...Number of days respondent boats on other pools, rivers, or lakes in a typical year.

	OTDAYS	
	Count	Percent
0	5	2.2%
1	3	1.3%
2	5	2.2%
3	3	1.3%
4	4	1.7%
5	5	2.2%
6	5	2.2%
7	3	1.3%
8	1	.4%
9	2	.9%
10	6	2.6%
12	1	.4%
14	2	.9%
15	1	.4%
20	4	1.7%
21	1	.4%
24	1	.4%
25	1	.4%
30	3	1.3%
40	1	.4%
50	1	.4%
•*	174	75.0%
Total	232	100.0%

* Do not boat on other pools, rivers, or lakes.

	Average	Std Deviation	Valid Cases
OTDAYS	10.09	10.51	58

Note: Statistics include only those respondents who boat on other pools, rivers, or lakes.

Variable HOURS...Number of hours boater spent on river during last boat outing.

	HOURS	
	Count	Percent
.00	1	.5%
.25	1	.5%
.50	4	1.8%
.75	1	.5%
1.00	12	5.4%
1.25	1	.5%
1.50	5	2.3%
2.00	23	10.4%
2.25	1	.5%
2.50	9	4.1%
3.00	26	11.8%
3.50	7	3.2%
3.75	1	.5%
4.00	27	12.2%
4.25	1	.5%
4.50	8	3.6%
4.75	2	.9%
5.00	18	8.1%
5.25	1	.5%
5.50	1	.5%
6.00	12	5.4%
6.25	1	.5%
6.50	3	1.4%
7.00	13	5.9%
7.50	2	.9%
7.75	1	.5%
8.00	9	4.1%
8.50	3	1.4%
8.75	1	.5%
9.00	5	2.3%
9.50	4	1.8%
10.00	2	.9%
11.00	3	1.4%
11.50	1	.5%
12.00	1	.5%
12.50	1	.5%
13.00	2	.9%
14.25	1	.5%
15.00	1	.5%
16.00	1	.5%
24.00	1	.5%
24.50	1	.5%
45.00	1	.5%
48.00	1	.5%
• (no data)	11	4.7%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
HOURS	5.26	5.28	221

Variable HP...Horsepower of boat used during last outing.

	HP	
	Count	Percent
0*	7	3.0%
3	1	.4%
5	4	1.7%
6	3	1.3%
7	2	.9%
10	5	2.2%
12	2	.9%
15	20	8.6%
18	5	2.2%
20	2	.9%
25	25	10.8%
30	18	7.8%
35	12	5.2%
40	17	7.3%
45	1	.4%
48	1	.4%
50	15	6.5%
55	7	3.0%
60	6	2.6%
65	2	.9%
70	2	.9%
75	1	.4%
80	1	.4%
85	1	.4%
90	3	1.3%
100	2	.9%
105	1	.4%
110	1	.4%
115	1	.4%
120	4	1.7%
125	6	2.6%
128	1	.4%
135	1	.4%
140	2	.9%
150	3	1.3%
160	5	2.2%
165	5	2.2%
175	3	1.3%
185	7	3.0%
188	1	.4%
190	2	.9%
200	1	.4%
225	5	2.2%
228	1	.4%
230	1	.4%
260	3	1.3%
280	3	1.3%
300	1	.4%
340	3	1.3%
	1	.4%

(continued)

	HP	
	Count	Percent
350	2	.9%
454	1	.4%
820	1	.4%
• (no data)	2	.4%
Total	232	100.0%

* Unpowered canoes, sailboats

	Average	Std Deviation	Valid Cases
HP	78.90	94.19	230

Variable LENGTH...Length in feet of boat used during last outing.

	LENGTH	
	Count	Percent
6.0	1	.4%
9.0	1	.4%
13.9	1	.4%
14.0	41	17.7%
15.0	14	6.0%
15.5	2	.9%
15.9	1	.4%
16.0	51	22.0%
16.5	1	.4%
16.6	1	.4%
17.0	15	6.5%
17.5	1	.4%
18.0	14	6.0%
18.5	1	.4%
18.8	1	.4%
19.0	11	4.7%
20.0	17	7.3%
20.5	1	.4%
21.0	9	3.9%
22.0	8	3.4%
23.0	2	.9%
23.3	1	.4%
24.0	16	6.9%
25.0	2	.9%
26.0	3	1.3%
27.0	3	1.3%
28.0	2	.9%
29.0	1	.4%
32.0	1	.4%
35.0	1	.4%
36.0	1	.4%
37.0	1	.4%
46.0	1	.4%
50.0	2	.9%
63.0	1	.4%
• (no data)	2	.9%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
LENGTH	18.70	6.26	230

Variable FISH...Percentage of time respondent spent fishing during their last boat outing on Pools 7 and 8.

	FISH	
	Count	Percent
0 (did not fish)	119	51.3%
1	2	.9%
2	1	.4%
5	1	.4%
10	9	3.9%
15	1	.4%
20	2	.9%
25	2	.9%
30	4	1.7%
33	1	.4%
40	2	.9%
50	7	3.0%
60	4	1.7%
70	3	1.3%
75	2	.9%
80	9	3.9%
85	2	.9%
90	8	3.4%
95	2	.9%
100	51	22.0%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
FISH	73.34	33.56	113

Note: Statistics include only those respondents who participated in the activity.

Variable CRUISE...Percentage of time boater spent cruising during last boat outing on Pools 7 and 8.

	CRUISE	
	Count	Percent
0 (did not cruise)	88	37.9%
1	1	.4%
5	4	1.7%
10	21	9.1%
15	3	1.3%
20	11	4.7%
25	13	5.6%
30	2	.9%
34	1	.4%
40	6	2.6%
50	20	8.6%
60	2	.9%
70	4	1.7%
75	4	1.7%
80	4	1.7%
85	1	.4%
90	5	2.2%
100	40	17.2%
●*	2	.9%
Total	232	100.0%

* Respondent indicated they spent time cruising, but did not provide percentage data.

	Average	Std Deviation	Valid Cases
CRUISE	54.30	35.92	142

Note: Statistics include only those respondents who participated in the activity.

Variable WSKI...Percentage of time respondent spent waterskiing during last boat outing on Pools 7 and 8.

	WSKI	
	Count	Percent %
0 (did not waterski)	202	87.1%
5	1	.4%
10	11	4.7%
15	1	.4%
20	6	2.6%
25	1	.4%
40	1	.4%
50	4	1.7%
60	1	.4%
75	1	.4%
80	1	.4%
100	2	.9%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
WSKI	31.00	28.02	30

Note: Statistics include only those respondents who participated in the activity.

Variable SWIM...Percentage of time respondent spent swimming during last boat outing on Pools 7 and 8.

	SWIM	
	Count	Percent
0 (did not swim)	201	86.6%
5	7	3.0%
10	14	6.0%
20	4	1.7%
25	5	2.2%
49	1	.4%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
SWIM	13.84	9.60	31

Note: Statistics include only those respondents who participated in the activity.

Variable RELAX...Percentage of time respondent spent relaxing or sunning in their boat during their last outing on Pools 7 and 8.

	RELAX	
	Count	Percent
0 (did not relax/sun)	161	69.4%
5	3	1.3%
10	10	4.3%
15	2	.9%
20	9	3.9%
25	7	3.0%
30	7	3.0%
33	1	.4%
35	2	.9%
40	7	3.0%
50	10	4.3%
75	1	.4%
80	1	.4%
85	3	1.3%
100	7	3.0%
●*	1	.4%
Total	232	100.0%

* Respondent indicated they spent time relaxing/sunning in boat but did not provide percentage data.

	Average	Std Deviation	Valid Cases
RELAX	38.61	28.20	70

Note: Statistics include only those respondents who participated in the activity.

Variable BEACH...Percentage of time respindents spent on beach site(s) during last boat outing on Pools 7 and 8.

	BEACH	
	Count	Percent
0 (did not use beach)	183	78.9%
4	1	.4%
5	7	3.0%
10	10	4.3%
15	1	.4%
20	2	.9%
25	8	3.4%
30	4	1.7%
40	2	.9%
50	4	1.7%
70	2	.9%
75	2	.9%
80	3	1.3%
90	2	.9%
●*	1	0.4%
Total	232	100.0%

* Respondent indicated they spent time on beach(s) but did not provide percentage data.

	Average	Std Deviation	Valid Cases
BEACH	51.08	140.76	48

Note: Statistics include only those respondents who participated in the activity.

Variable OTHER...Percentage of time respondent spent on "other" (unlisted) activities during their last boat outing on Pools 7 and 8.

	OTHER	
	Count	Percent
0 (did not do "other")	205	88.4%
10	1	.4%
20	4	1.7%
25	2	.9%
30	5	2.2%
40	2	.9%
50	1	.4%
60	1	.4%
65	1	.4%
68	1	.4%
85	1	.4%
90	3	1.3%
100	5	2.2%
Total	232	100.0%

	Average	Std Deviation	Valid Cases
OTHER	54.37	32.41	27

Note: Statistics include only those respondents who participated in the activity.

Variable MAINCH...Percentage of time respondent spent on the main channel during last boat outing on Pools 7 and 8.

	MAINCH	
	Count	Percent
0	54	23.3%
2	3	1.3%
3	1	.4%
5	8	3.4%
10	18	7.8%
15	6	2.6%
20	11	4.7%
25	7	3.0%
30	6	2.6%
34	1	.4%
35	2	.9%
40	7	3.0%
50	29	12.5%
60	4	1.7%
67	1	.4%
70	5	2.2%
75	9	3.9%
80	17	7.3%
85	1	.4%
88	1	.4%
90	8	3.4%
95	2	.9%
100	29	12.5%
●*	2	.9%
Total	232	100.0%

* Respondents indicated they spent time on main channel but did not provide percentage data.

	Average	Std Deviation	Valid Cases
MAINCH	40.88	36.86	230

Variable BLRIV...Percentage of time boater spent on the Black River during their last boat outing on Pools 7 and 8.

	BLRIV	
	Count	Percent
0	134	57.8%
2	1	.4%
5	7	3.0%
10	11	4.7%
15	4	1.7%
20	5	2.2%
25	7	3.0%
30	7	3.0%
33	2	.9%
35	1	.4%
40	4	1.7%
50	15	6.5%
60	4	1.7%
65	1	.4%
70	2	.9%
75	4	1.7%
80	5	2.2%
85	1	.4%
90	2	.9%
93	1	.4%
95	1	.4%
100	11	4.7%
●*	2	.9%
Total	232	100.0%

* Respondents indicated they spent time on the Black River but did not provide percentage data.

	Average	Std Deviation	Valid Cases
BLRIV	19.14	30.42	230

Variable BACK...Percentage of time respondent spent in backwater areas during last Pools 7 and 8 boat outing.

	BACK	
	Count	Percent
0	69	29.7%
4	1	.4%
5	4	1.7%
10	19	8.2%
15	2	.9%
20	12	5.2%
25	10	4.3%
30	2	.9%
33	1	.4%
35	1	.4%
40	5	2.2%
50	30	12.9%
60	3	1.3%
65	1	.4%
70	5	2.2%
75	1	.4%
80	7	3.0%
85	9	3.9%
90	15	6.5%
95	1	.4%
98	3	1.3%
100	29	12.6%
●*	2	.9%
Total	232	100.0%

* Respondents indicated they spent time on backwaters but did not provide percentage data.

	Average	Std Deviation	Valid Cases
BACK	39.98	38.38	230

Pools 7 and 8 - Lock Users

Variable YEARS...Number of years respondent has boated on the Mississippi River (not on Pools 7 and 8).

	YEARS	
	Count	Percent
1	2	1.9%
2	1	1.0%
3	3	2.9%
4	6	5.8%
5	15	14.4%
6	9	8.7%
7	4	3.8%
8	6	5.8%
9	1	1.0%
10	3	2.9%
12	4	3.8%
14	1	1.0%
15	10	9.6%
16	3	2.9%
17	1	1.0%
18	4	3.8%
20	5	4.8%
22	2	1.9%
25	10	9.6%
26	2	1.9%
30	2	1.9%
31	1	1.0%
32	1	1.0%
33	1	1.0%
35	2	1.9%
36	1	1.0%
38	1	1.0%
40	3	2.9%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
YEARS	14.38	10.37	104

Variable TOTDAYS...Total number of days respondent boats on Pools 7 and 8 during a typical year.

	TOTDAYS	
	Count	Percent
0	2	1.9%
1	2	1.9%
2	15	14.4%
3	6	5.8%
4	16	15.4%
5	9	8.7%
6	7	6.7%
7	3	2.9%
8	10	9.6%
9	1	1.0%
10	11	10.6%
12	4	3.8%
13	1	1.0%
14	1	1.0%
15	3	2.9%
17	2	1.9%
20	3	2.9%
25	1	1.0%
30	2	1.9%
36	1	1.0%
50	1	1.0%
60	1	1.0%
75	1	1.0%
• (no data)	1	1.0%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
TOTDAYS	9.14	11.32	103

Variable WEEKDAY...Total number of weekdays respondent boats on Pools 7 and 8 in a typical year.

	WEEKDAY	
	Count	Percent
0	25	24.0%
1	8	7.7%
2	23	22.1%
3	9	8.7%
4	13	12.5%
5	8	7.7%
6	6	5.8%
7	1	1.0%
8	1	1.0%
10	6	5.8%
12	1	1.0%
20	1	1.0%
27	1	1.0%
• (no data)	1	1.0%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
WEEKDAY	3.33	4.02	103

Variable WEEKEND...Total number of weekend days respondent boats on Pools 7 and 8 in a typical year.

	WEEKEND	
	Count	Percent
0	11	10.6%
1	6	5.8%
2	29	27.9%
3	7	6.7%
4	14	13.5%
5	6	5.8%
6	4	3.8%
7	3	2.9%
8	7	6.7%
9	1	1.0%
10	3	2.9%
12	2	1.9%
14	1	1.0%
18	1	1.0%
19	1	1.0%
20	3	2.9%
24	1	1.0%
40	2	1.9%
48	1	1.0%
• (no data)	1	1.0%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
WEEKEND	5.81	8.08	103

Variable OTDAYS...Total number of days respondent boats on other rivers or lakes (not other Mississippi River Pools) in a typical year.

	OTDAYS	
	Count	Percent %
1	1	1.0%
2	2	1.9%
3	3	2.9%
5	4	3.8%
9	1	1.0%
10	9	8.7%
12	2	1.9%
14	1	1.0%
15	3	2.9%
19	1	1.0%
20	5	4.8%
25	1	1.0%
30	4	3.8%
35	2	1.9%
36	1	1.0%
43	1	1.0%
45	1	1.0%
50	3	2.9%
60	7	6.7%
90	1	1.0%
•*	60	57.7%
Total	104	100.0%

* Respondents did not provide data (4 cases) or do not boat on other rivers or lakes (56 cases).

	Average	Std Deviation	Valid Cases
OTDAYS	18.77	16.14	44

Variable MILES...Distance respondent travels from home to boat slip or most frequently used launch ramp.

	MILES	
	Count	Percent
0	2	1.9%
1	5	4.8%
2	6	5.8%
3	3	2.9%
4	1	1.0%
5	6	5.8%
6	2	1.9%
7	3	2.9%
8	2	1.9%
9	1	1.0%
10	7	6.7%
15	5	4.8%
20	3	2.9%
25	3	2.9%
28	2	1.9%
30	7	6.7%
35	2	1.9%
40	4	3.8%
45	3	2.9%
50	5	4.8%
60	4	3.8%
63	1	1.0%
65	2	1.9%
70	4	3.8%
74	1	1.0%
75	1	1.0%
80	2	1.9%
85	2	1.9%
90	1	1.0%
92	1	1.0%
94	1	1.0%
100	4	3.8%
130	1	1.0%
140	1	1.0%
150	1	1.0%
157	1	1.0%
• (no data)	4	3.8%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
MILES	37.24	37.06	100

Variable DAYS7_8...Number of days respondent spent on Pools 7 and 8 during last boat trip (multiple day visits only).

	DAYS7_8	
	Count	Percent
2	38	36.5%
3	9	8.7%
4	8	7.7%
5	3	2.9%
6	1	1.0%
8	1	1.0%
•*	44	42.3%
Total	104	100.0%

* Did not stay overnight on Pools 7 or 8.

	Average	Std Deviation	Valid Cases
DAYS7_8	2.73	1.22	60

Note: Statistics include multiple-day visitors only.

Variable HP...Horsepower of boat used on last Pools 7 and 8 trip.

	HP	
	Count	Percent
50	1	1.0%
60	2	1.9%
85	1	1.0%
125	3	2.9%
130	1	1.0%
135	1	1.0%
140	2	1.9%
175	8	7.7%
188	1	1.0%
190	1	1.0%
200	3	2.9%
205	1	1.0%
220	1	1.0%
225	4	3.8%
228	2	1.9%
230	2	1.9%
233	1	1.0%
260	15	14.4%
265	1	1.0%
270	2	1.9%
271	1	1.0%
275	2	1.9%
280	1	1.0%
300	3	2.9%
320	1	1.0%
330	5	4.8%
340	1	1.0%
350	3	2.9%
360	1	1.0%
365	1	1.0%
380	2	1.9%
390	1	1.0%
410	1	1.0%
415	1	1.0%
440	1	1.0%
460	3	2.9%
500	3	2.9%
520	4	3.8%
540	2	1.9%
550	2	1.9%
570	1	1.0%
600	1	1.0%
610	1	1.0%
660	1	1.0%
680	1	1.0%
700	3	2.9%
780	1	1.0%
• (no data)	3	2.9%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
HP	320.53	161.68	101

Variable LENGTH...Length in feet of boat used on last Pools 7 and 8 trip.

	LENGTH	
	Count	Percent
14.0	1	1.0%
16.0	1	1.0%
17.0	4	3.8%
18.0	5	4.8%
18.5	1	1.0%
19.0	5	4.8%
20.0	6	5.8%
20.6	1	1.0%
21.0	11	10.6%
22.0	6	5.8%
22.5	2	1.9%
23.0	2	1.9%
23.5	1	1.0%
24.0	7	6.7%
25.0	3	2.9%
26.0	9	8.7%
27.0	8	7.7%
28.0	5	4.8%
30.0	9	8.7%
32.0	2	1.9%
33.0	2	1.9%
34.0	2	1.9%
35.0	2	1.9%
36.0	1	1.0%
37.0	3	2.9%
38.0	2	1.9%
42.0	1	1.0%
43.0	1	1.0%
46.0	1	1.0%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
LENGTH	25.43	6.37	104

Variable FISH...Percentage of time respondents spent fishing during last boat outing on Pools 7 and/or 8.

	FISH	
	Count	Percent
0 (did not fish)	88	84.6%
1	1	6.3%
5	1	1.0%
10	7	6.7%
15	1	1.0%
20	2	1.9%
25	2	1.9%
40	1	1.0%
75	1	1.0%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
FISH	18.50	17.80	16

Note: Statistics include only those respondents who participated in the activity.

Variable CRUISE...Percentage of time boater spent cruising during last trip to Pools 7 and 8.

	CRUISE	
	Count	Percent
0 (did not cruise)	4	3.8%
1	1	1.0%
5	1	1.0%
10	6	5.8%
15	4	3.8%
20	15	14.4%
25	9	8.7%
30	7	6.7%
34	1	1.0%
35	1	1.0%
40	7	6.7%
50	22	21.2%
60	3	2.9%
70	6	5.8%
75	2	1.9%
80	4	3.8%
85	1	1.0%
90	1	1.0%
100	8	7.7%
●*	1	1.0%
Total	104	100.0%

* Respondent indicated they spent time cruising but did not provide percentage data.

	Average	Std Deviation	Valid Cases
CRUISE	43.99	26.50	99

Note: Statistics include only those respondents who participated in the activity.

Variable WSKI...Percentage of time boater spent waterskiing during last trip to Pools 7 and 8.

	WSKI	
	Count	Percent
0 (did not waterski)	87	83.7%
5	7	6.7%
10	5	3.8%
20	2	2.9%
25	1	1.0%
30	1	1.0%
●*	1	1.0%
Total	104	100.0%

* Respondent indicated they spent time waterskiing but did not provide percentage data.

	Average	Std Deviation	Valid Cases
WSKI	11.25	8.06	16

Note: Statistics include only those respondents who participated in the activity.

Variable SWIM...Percentage of time boater spent swimming from boat during their last trip to Pools 7 and 8.

	SWIM	
	Count	Percent
0 (did not swim)	69	66.3%
2	1	1.0%
5	8	7.7%
9	1	1.0%
10	17	16.3%
20	3	2.9%
25	2	1.9%
29	1	1.0%
50	1	1.0%
•*	1	1.0%
Total	104	100.0%

* Respondent indicated they spent time swimming from boat but did not provide percentage data.

	Average	Std Deviation	Valid Cases
SWIM	12.06	9.26	34

Note: Statistics include only those respondents who participated in the activity.

Variable RELAX...Percentage of time boater spent relaxing or sunning in the boat during last trip to Pools 7 and 8.

	RELAX	
	Count	Percent
0 (did not relax/sun)	28	26.9%
2	1	1.0%
5	4	3.8%
10	12	10.6%
15	2	1.9%
20	10	10.6%
25	12	11.5%
30	4	3.8%
33	1	1.0%
40	5	4.8%
50	12	11.5%
60	1	1.0%
70	2	1.9%
75	2	1.9%
80	6	5.8%
90	1	1.0%
●*	1	1.0%
Total	104	100.0%

* Respondent indicated they spent time relaxing or sunning in the boat but did not provide percentage data.

	Average	Std Deviation	Valid Cases
RELAX	33.93	23.46	75

Note: Statistics include only those respondents who participated in the activity.

Variable BEACH...Percentage of time respondent spent at beach(s) during last trip to Pools 7 and 8.

	BEACH	
	Count	Percent
0 (did not use beach)	25	24.0%
5	2	1.9%
10	16	15.4%
20	11	10.6%
25	10	9.6%
30	3	2.9%
33	1	1.0%
40	4	3.8%
45	1	1.0%
50	10	9.6%
55	1	1.0%
60	1	1.0%
70	2	1.9%
75	2	1.9%
80	1	1.0%
85	1	1.0%
86	1	1.0%
90	1	1.0%
●*	11	10.6%
Total	104	100.0%

* Respondent indicated they spent time at beach site(s) but did not provide percentage data.

	Average	Std Deviation	Valid Cases
BEACH	32.56	22.60	68

Note: Statistics include only those respondents who participated in the activity.

	OTHER	
	Count	Percent
0 (did not do "other")	95	91.3%
10	2	1.9%
15	1	1.0%
20	1	1.0%
30	1	1.0%
35	1	1.0%
50	2	1.9%
80	1	1.0%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
OTHER	33.33	23.32	9

Note: Statistics include only those respondents who participated in the activity.

Variable MAINCH...Percentage of time respondent spent on the main channel during last day on Pools 7 and 8.

	MAINCH	
	Count	Percent
20	2	1.9%
40	3	2.9%
50	3	2.9%
60	2	1.9%
70	1	1.0%
75	5	4.8%
80	4	3.8%
85	3	2.9%
90	18	17.3%
95	8	7.7%
98	1	1.0%
100	53	51.0%
●*	1	1.0%
Total	104	100.0%

* Respondent spent time on main channel but did not provide percentage data.

	Average	Std Deviation	Valid Cases
MAINCH	89.59	17.56	103

Variable BLRIV...Percentage of time respondent spent on the Black River during last day on Pools 7 and 8.

	BLRIV	
	Count	Percent
0	69	66.3%
5	5	4.8%
10	13	12.5%
15	2	1.9%
20	4	3.8%
25	1	1.0%
40	2	1.9%
50	2	1.9%
60	2	1.9%
80	1	1.0%
• (no data)	3	2.9%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
BLRIV	6.63	14.65	101

Variable BACK...Percentage of time respondents spent in backwaters during last day on Pools 7 and 8.

	BACK	
	Count	Percent
0	78	75.0%
2	1	1.0%
5	6	5.8%
10	11	10.6%
20	1	1.0%
25	2	1.9%
50	1	1.0%
70	1	1.0%
• (no data)	3	2.9%
Total	104	100.0%

	Average	Std Deviation	Valid Cases
BACK	2.29	9.60	101

Appendix I

Coded and Categorized Responses to Open-Ended Survey Questions

Note: Throughout Appendix I, the figures on the left hand side of the page represent the frequency of the responses listed on the right. The responses given are listed with their assigned code numbers as entered in the survey database and are listed by the response categories used in the report tables.

Pool 7 and 8 Ramp Users

N = 335

Question 9a: Do you have a favorite place to go on Pools 7 and 8?

- 213/335 (64 percent) had a favorite location
- 256 responses were given

Pool 7: Main Channel

2	1.	Beaches, mile 712
1	24.	Beach 706.5 (Dakota Island)
1	25.	Beach 709
2	41.	Dresbach, landing and park
2	52.	Wing dam north end of Pigeon Island
3	54.	East of Pigeon Island
5	55.	Beaches, mile 713
1	56.	Miles 707-708
2	57.	Sloughs east of mile 710
1	58.	Trempealeau landing
1	59.	Beaches, mile 714
1	86.	Main Channel, miles 703-709
1	87.	Beach, mile 703.5
1	88.	Main Channel, miles 705-707
1	90.	Sumner Slough east of mile 706.5
2	95.	Dalmatian Island (NE of Dresbach Island)
1	114.	Dresbach Island (mile 705)

Lake Onalaska

5	26.	Lake Onalaska
1	30.	Backwater sloughs east of mile 708
3	31.	Lake Onalaska north of French Island in the non-closed area
3	32.	Bay southeast of Bell Island
1	33.	North Central Lake Onalaska
1	34.	Brice Prairie
2	35.	Red Sails
1	36.	Islands east of mile 707.5
2	37.	West Lake Onalaska east of mile 706
5	39.	South of Rosebud Island
2	42.	Gibbs Flat
1	83.	Rosebud Island / East of Rosebud
1	85.	Bay north of Onalaska Spillway (see also #32)
1	89.	Lake Onalaska, north end
1	92.	Mile 706, Lake Onalaska east - stumpfields
1	108.	Backwaters, Lake Onalaska to Mud Lake, mile 709

Trempealeau Lakes

6	2.	Trempealeau Lakes
1	40.	Round Lake
4	69.	Second Lake
2	70.	Third Lake
1	81.	Round Lake

Pool 8: Main Channel (and points west)

2	4.	Main Channel miles 696-697 (Isle La Plume)
6	5.	Backwaters behind Broken Arrow Slough & Coney Is.
7	7.	Beach 690.5 / Crater Island
4	8.	Beach 691
3	10.	Around Wildcat Landing (very close)
2	11.	Beach across from Wildcat Landing
3	12.	Around Wildcat Landing (mile markers 690-688)
2	15.	Genoa and Stoddard
3	16.	Beaches 690.5-689.5, Crater Island
2	17.	Beach 692
3	20.	Miles 698-689, Main Channel (confluence of Black and Mississippi Rivers to Brownsville) La Crosse to Brownsville
1	27.	Sandbar Marina
6	29.	Waters around Coney Island
2	38.	South end of Target Lake/Target Lake (general)
1	46.	Bikini Yacht Club
2	47.	Pettibone Beach
1	49.	Mile 697, West channel
1	51.	Root River bottom land forest
6	53.	Main channel between Lock 7 and I-90 bridge
1	61.	Pool west of Lock 7 below dam
1	62.	Miles 695-696, Main channel (islands)
2	63.	Miles 687-688
3	65.	Mile 699.5, beaches East channel
4	66.	Mile 689, Brownsville area/beaches/general
1	72.	Lock and Dam #8
3	73.	Lock and Dam #7
1	75.	Mile 686
2	76.	Miles 695-699
1	78.	Miles 698-701
1	79.	Mile 699
1	82.	Miles 697-702, Main Channel; LaCrosse to Dresbach
1	84.	Coney Island
1	97.	Beach, mile 702
2	113.	Beaches around mile 687
1	116.	West Channel

Black River

9	19.	North of Clinton Street
10	21.	Black River s. of I-90 bridge/in general
5	23.	Catgut Slough
4	67.	Beach/Landing midway between I-90 and spillway
5	74.	Onalaska Spillway
2	77.	Black River south of Clinton Street
1	93.	Black River below railroad bridge
1	98.	Catgut Slough, north end

Backwaters; West French Island

8	18.	East Channel
4	22.	East Channel, mile 701-702/Jolynn Slough
3	28.	French Slough / French Lake backwaters
1	80.	East Channel, mile 701 (Jolynn Slough)

Backwaters; East of Main Channel and South of Black River

6	3.	West Goose Island backwaters
7	6.	Backwaters between Goose Island and main channel to north, west, and south
1	13.	Backwaters around Crosby Slough
2	43.	Mile 690: Sloughs to east and beaches on channel (Crater Island)
1	44.	Mile 691: Sloughs to east and beaches on channel
7	45.	Mile 694.5, Sloughs/beach east of main channel
2	50.	Running Slough
6	71.	Sloughs North of Goose Island/Upper Goose Is. area
1	94.	Slough across from Wildcat
1	105.	Bluff Slough
1	111.	South Goose Island backwaters

Backwaters (general)

3	60.	Backwaters in general/sloughs
---	-----	-------------------------------

Any Beach/Beaches

3	9.	Any open beach
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Other Non-specific or Large Areas

1	14.	La Crosse
3	48.	Wingdams
1	68.	Main Channel in general, pools 7 & 8
1	112.	Pool 8 / in general
1	117.	Day markers / rock piles

Question 9b: Why is this/are those your favorite place(s)?

- 211/213 (99 percent) gave a reason(s) for their favorite location(s)
- 298 responses were given

Good Fishing

74	3.	Good Fishing; Better fishing; Catch more fish there; Fish are there; Good ice fishing
3	24.	Rocks and wingdams provide fish habitat (walleyes)
2	27.	Weed beds are good for fishing
1	28.	Fishing tournaments are held here
1	35.	More options for backwater fishing
1	39.	Like fishing in the sloughs and wing dams
1	41.	Deeper holes for fishing
1	46.	More sizeable fish there (bigger fish)
3	47.	We fish for panfish there
4	60.	Walleye fishing
1	68.	Fishing is better than at Trempealeau Lakes
4	69.	Bass fishing
2	70.	Northern (pike) fishing
3	71.	Catfish are there
1	76.	Concentration of fish in the Spring

Good Beaches

1	7.	Wherever a beach is open (because it's available)
15	18.	Beaches (general); nice beach
8	21.	Slope of beach; grade of sand in water; nice beach; good beach for swimming
3	33.	(Beach) good for family activities/games/volley ball (flat)
1	37.	Shallow areas to ground boat on beach
4	40.	Beaches are big
1	52.	Kids like the hill of sand
1	58.	Good water level (can pull up to beach)
1	61.	Can picnic on islands
3	64.	Good for camping (beach)

Scenery; Wildlife; Other Natural Features

3	1.	Nice Scenery/nice view
2	10.	See wildlife there
1	48.	Small size (body of water)

Calm Water; Less Wakes and Current (Good for cruising, water skiing, etc.)

6	5.	Get away from choppy channel there; calm water
6	22.	Further off main channel; less wake

- | | | |
|---|-----|--|
| 5 | 23. | Water calm - protected from wind; less current |
| 5 | 25. | Good place to take kids; safer for children (due to shallower water) |
| 1 | 29. | Easy boating - not like backwaters where water is too shallow |
| 1 | 30. | Like pretty water on weekdays |
| 8 | 38. | Calm water for waterskiing; tubing |
| 4 | 43. | Shallow water; safer for kids/swimmers |
| 1 | 63. | No current (see also #23); current not bad |
| 1 | 75. | Safe for kids; Safer |

Deeper Water; Less Obstructions

- | | | |
|---|-----|--|
| 3 | 53. | The water is deep |
| 1 | 65. | No obstructions |
| 1 | 67. | Boat size restricts us to main channel (need deeper water) |
| 1 | 74. | No wingdams |

Solitude; Quiet; Fewer Boats

- | | | |
|----|-----|---|
| 5 | 4. | Get away from big boats (avoid wakes); less large boats |
| 17 | 17. | No people; quiet; private; not crowded; remote |
| 1 | 19. | Don't have to worry about water skiers |
| 22 | 20. | Less boat traffic |
| 1 | 26. | No water skiers |
| 1 | 55. | Get away from personal watercraft |

See Friends/Family; Social

- | | | |
|---|-----|---|
| 1 | 6. | Handy to drive to beach to meet friends |
| 2 | 11. | Someone can see you over there if they come to visit; easy to meet up with people |
| 4 | 13. | People we know are here; Friends |
| 1 | 50. | No rough stuff - Vandalism |
| 1 | 51. | Don't have idiots from La Crosse; safer |

Facilities Related

- | | | |
|---|-----|---------------------------|
| 2 | 12. | Campground is here |
| 1 | 15. | Places to eat/restaurants |
| 1 | 44. | Nice landing to use |

Close to Home/Convenient/Familiar

- | | | |
|----|-----|---|
| 4 | 8. | Easy to get in and out of; easy access |
| 15 | 9. | Handy; close; convenient |
| 10 | 14. | Where I've always been coming; familiar |

1	16.	Own a shack on the water; cabin nearby; Live there
1	32.	Don't go too far down from Goose Island
1	42.	Cabin is at Trempealeau
2	49.	Grew up here
1	72.	Handy for a few hours trip

Other Reasons

2	2.	Good clamming
3	31.	Like to hunt there; Duck hunt there
1	34.	Entertainment (at Bikini Yacht Club)
2	36.	Cleaner
1	45.	Not familiar with these pools (7 & 8)
1	54.	Good home base
1	56.	Close to Riverside Park/La Crosse
1	59.	Close to Wildcat/church
1	62.	Sailing club located there

Question 10a: Are there any parts of Pools 7 and 8 that you deliberately avoid?

- 159/335 (47 percent) avoided at least one location
- 187 responses were given

Pool 7

7	13.	Lake Onalaska
1	15.	Stumpfields east of mile 708
2	17.	Open water area in west Lake Onalaska
1	20.	Richmond Island
1	21.	Pool 7 in general
1	29.	Main channel west of Trempealeau Lakes
2	31.	Steep beaches above mile 712
1	32.	Trempealeau landing
1	42.	Second Lake
2	43.	Areas south of Bell Island
1	46.	Areas north of Bell Island
1	47.	Obstruction between north tip of Bell Island and Nelson launch
3	48.	Stump fields in Lake Onalaska
1	51.	Brice Prairie Landing
1	57.	Area south of Nelson Park launch

Pool 8 - Main Channel (and points west):

43	1.	Main Channel
2	2.	Wildcat Landing/Brownsville area
1	4.	Shellhorn

11	5.	Coney Island
3	6.	Miss. & Black Rivers above confluence (mile 698)
2	7.	Main Channel mile 694 to 690
4	8.	Wisconsin Island Closed Area
3	10.	Pettibone Park
7	18.	Below confluence, miles 698-696 (La Crosse to Coney)
5	22.	Cass Street Bridge area
4	23.	Riverside Park
1	24.	Stoddard Park boat ramp
1	25.	East side of channel, miles 684-696
10	27.	Downtown La Crosse in general
2	34.	Main Channel mile 697
2	35.	Below Lock and Dam #7
3	38.	Main Channel, Coney Island to L&D #7
3	40.	Mile 699, N. Barron Island
1	45.	Main Channel, when windy
1	54.	Main Channel, miles 698-702.5 (above confluence)
1	56.	Mile 696, barge docking area
1	58.	Shallows south of Wildcat, mile 688
1	59.	Wingdams, north end of Minnesota Island
1	61.	Main Channel, mile 695
2	81.	Confluence of Mississippi and Black Rivers

Black River and French Island

1	16.	Copeland area
3	41.	Black River south of the Railroad bridge
2	44.	Clinton Street to Railroad bridge
1	63.	Black River

East of Main Channel

1	11.	Running Slough above Goose Island
3	26.	Goose Island area sloughs
1	52.	East Channel/when water is < 6 feet
1	60.	Shallow sloughs across from Wildcat

Non-specific

6	3.	Locks
4	9.	Where we know it's shallow
1	12.	Where there's too much current
1	14.	Afternoons
5	28.	Weekends
1	30.	Pool 8
4	33.	Whole La Crosse area
1	37.	Where speedboats are
1	39.	No-wake zones
1	49.	Small beaches

1	50.	Stumps
1	53.	Side channels
4	55.	Wingdams
1	68.	Backwaters
1	70.	Beaches

Question 10b: Why do you avoid that/those parts of the river?

- 153/159 (96 percent) gave a reason(s) for the location(s) avoided
- 213 responses were given

Poor Fishing

9	9.	Poor fishing; nothing to hold fish
2	13.	No structure
1	22.	Mostly sunfish
1	34.	Difficult to fish
1	37.	Too many rough fish
1	46.	Catfish need deeper water

Undesirable Water Conditions (Current, Shallows, Obstructions)

10	4.	Stumps damage boat; potential for boat damage
4	8.	So filled in can't get through
2	10.	Too many weeds
10	11.	Too shallow/shallow areas
4	12.	Wing dams; wing dams hazardous
4	14.	Strong current
2	17.	Fighting wind
1	18.	Getting Stuck (on shoals)
3	21.	Too many snags/stumps
3	35.	Too many rocks
2	39.	Obstruction in water
1	47.	Filling in by Nelson launch
1	49.	Avoid wingdams in area - 8' of water goes to 2' and damages propeller.

Beaches Not as Desirable

1	28.	Beaches too steep
1	29.	Water depth drops too quickly (not good for landing boat or swimming)
2	30.	Beaches not as nice
1	40.	Beaches too small for laying out
1	50.	Unsanitary beaches

Too Many Boats/Wakes; Too Much Traffic

- | | | |
|----|-----|---|
| 17 | 1. | Boat pounded by other boat wakes/rough water |
| 69 | 2. | Too much boat traffic; congestion; very busy |
| 9 | 7. | Boats are getting bigger; want to avoid big boats |
| 2 | 20. | Weekend traffic from pleasure boaters |
| 2 | 24. | Better skiing away from people of this area |
| 7 | 27. | Too many people; crowded |
| 2 | 36. | Too much traffic to relax or fish |
| 2 | 48. | Too big of wakes |

Undesirable Behavior; Unsafe Boating

- | | | |
|---|-----|---|
| 7 | 5. | Careless boaters; unsmart boaters; careless drivers |
| 2 | 25. | Drinking; parties |
| 2 | 26. | Jet skiers (undesirable behavior/unsafe) |
| 2 | 32. | Speeders have no courtesy |

Sheriff's Patrol/Law Enforcement

- | | | |
|---|-----|--|
| 2 | 44. | Sheriff's patrol targets high speed boats with agility |
|---|-----|--|

Other Reasons

- | | | |
|---|-----|--|
| 3 | 3. | Not familiar with it |
| 1 | 15. | Personal preference; no interest in it |
| 1 | 16. | Farther from home |
| 2 | 19. | Barges |
| 2 | 23. | Boat ramp sucks |
| 2 | 31. | Avoid no-wake zones |
| 1 | 33. | Don't like no-wake zones (shouldn't be in effect at 6 AM) |
| 1 | 38. | Jet skis don't idle well (hard to stay below no-wake speed) |
| 1 | 41. | Too many campers |
| 2 | 42. | Perceive Locks and Dams to be dangerous |
| 1 | 43. | Bad sonar echo from riprap |
| 1 | 45. | Avoid barge docks (because of barge traffic and safety concerns) |
| 2 | 51. | Boat too small (to brave open water on Lake Onalaska) |

Question 11: What do you like the best about this part of the river?

- 324/335 (97 percent) mentioned a feature they liked best
- 500 responses were given

Good Fishing

59	3.	Good fishing
2	33.	Year-round fishing
1	35.	Fishing tournaments are the best there
3	36.	Fish habitat, structure, rock, wingdams
5	38.	Panfish; Bluegill; Crappie
1	40.	Know where fish should be
5	48.	Variety of fish
4	51.	Walleyes are bigger and easier to catch
3	53.	Good bass fishing
1	64.	Islands and stumps for fishing
1	70.	The dam, the currents attract fish
2	87.	Good catfishing
1	92.	Dredging - may produce fish (Lake Onalaska)

Water Quality; Calm Water; Other Water Features

2	1.	No stumps
16	9.	Calm water; not as much current; clear water; safer to be on
7	20.	Clean
2	29.	Sandy bottom
2	30.	No wing dams (on the Black River)
1	56.	Water cleaner than Pools 10 & 11
3	67.	Deeper water; depth
2	71.	Large area of water
3	73.	Backwaters; sloughs and back channels for relaxing
1	84.	Warm water
2	94.	Shallow water

Good Beaches

19	26.	Sand bars and beaches
1	54.	Islands
1	89.	Sandbars/beaches aren't privately owned

Good Public Facilities

2	2.	Good Condition (facilities)
2	7.	The landing area, drive up to the beach
3	18.	Campground right there/camping in general
15	24.	Easy access ramp
15	27.	Good boat launch

1	28.	No charge for boat launch
1	45.	Dock to tie up boat
2	60.	Lots of landings
1	65.	Nice park facilities
1	80.	Well marked; channel clearly marked
1	81.	Restaurant on the river
1	82.	Goose Island (camping, picnicking facilities)
1	95.	Motels available around here

Close; Convenient; Familiar

57	5.	Close to home
3	8.	Close to town / not home town
35	12.	Convenient; close to home
22	15.	Familiar with it; familiar territory
1	34.	Not too big an area
1	37.	Close to relatives for visit to fish and camp
3	52.	Grew up here
1	58.	Boat is being kept close by; docked there
1	68.	Close to a launch
1	69.	La Crosse location
1	96.	Easy to get to by freeway
1	97.	Access to whole Mississippi
2	98.	Cabin close by

General Enjoyment; Good for Chosen Activities

7	10.	Nice atmosphere; like the area; like boating here
3	14.	Fun to be out; get out; away
3	22.	Good water skiing
1	42.	Fun boating in sloughs
2	46.	Can jump wakes if you want to; calm but some wave action
4	55.	Variety of activities; things to do

Family and Friends; Social Opportunities

14	11.	Friends come here; visit with people; socialize
1	16.	Lots of boaters
4	17.	Lots of Action; Activity; Girl Watching
4	43.	Good for kids
1	78.	Friend has a boathouse across the river

Quiet; Relaxing; Peaceful; Low-Density Rec. Opportunities

17	4.	Always get away from a crowd here; less busy; not crowded
3	6.	Like a wilderness in the back sloughs
17	21.	Quiet; peaceful; less busy

14	23.	Less boat traffic
2	25.	Quieter for skiing
1	44.	Isolation with the canoe - get into areas where motorboats can't
3	49.	Less crowded than Pool 8 (Pool 7)
2	50.	Not as crowded as around La Crosse
1	61.	Don't have big high-powered boats tearing through
2	62.	Can get in to back areas where bigger boats can't
1	74.	No speedboats
1	75.	Sailboating; Good Sailing; Sailboat here, no powerboats
1	76.	Good place to sail (stumps/shallows keep out motor boats)
1	77.	Can relax and enjoy the ride
1	91.	Fewer fishermen

Scenery; Wildlife; Other Natural Features

44	19.	Scenery; aesthetics
6	31.	Ducks and other wildlife; eagles; herons

Other Features

1	32.	No DNR in the back channels there
3	39.	Duck hunting
2	41.	Enjoy sloughs (general)
1	59.	No-wake zone good
1	66.	Safer
1	72.	Other boats are the same size as ours
1	79.	We like the Black River
1	83.	People are polite
1	85.	Can get out of wind
1	86.	Close to others if there's a problem
1	88.	Barges

Question 12a: Do you use any other Mississippi River pools or other rivers or lakes to do the same type of boating you did today?

- 170/335 (51 percent) mentioned at least one other location where they boat
- 328 responses were given

Other Pools, Rivers, and Lakes (alphabetized list of locations)

1	11.	Alexandria, Minnesota
1	37.	Barron County
1	87.	Big Green Lake

6	34.	Black River (above Pool 7)
2	55.	Blackhawk Park (Pool 9)
1	114.	Bloomer, WI
1	31.	Buffalo Lake
1	28.	Callahan Lake
1	59.	Canadian lakes
7	74.	Castle Rock flowage
1	10.	Cedar Lake
2	71.	Chain Lake (WI)
5	52.	Chetek
5	29.	Chippewa Flowage
1	113.	Clam Lake
1	17.	Crystal Lake
1	118.	Deer Lake
1	76.	Door County
1	90.	Flambeau Floats
1	86.	Fox River
2	60.	Galesville (WI) area lakes
1	32.	Ghost Lake
1	89.	Green Bay
1	93.	Grindstone
7	41.	Hayward
1	54.	Inland lakes
1	45.	Iowa pools (all)
2	40.	Jersey Valley by Westby, WI
1	16.	Kenosha
1	5.	La Crosse River
1	49.	Lake 26 (Siren)
1	50.	Lake 5 (Milwaukee)
1	117.	Lake Altoona
6	78.	Lake Arbutis (Hatfield, WI)
1	92.	Lake Couderea
1	91.	Lake Delton
1	48.	Lake Eau Claire / Rice Lake
1	51.	Lake Freeze (Milwaukee)
1	75.	Lake Geneva
1	21.	Lake Keshive
1	119.	Lake Knutsen
1	67.	Lake Marinuka
1	70.	Lake Mead (WI)
4	58.	Lake Michigan
5	12.	Lake Neshonic
1	88.	Lake Oahe (South Dakota)
8	1.	Lake Pepin
1	99.	Lake Powell (UT)
1	115.	Lake Redstone
1	102.	Lake Sherwood
3	20.	Lake Superior
2	80.	Lake Tomah

2	61.	Lake Winnebago
1	56.	Lake Winona
1	112.	Lake Winter
2	6.	Lansing, Iowa
1	14.	Leech Lake, Canada
1	23.	Lone Pine
4	62.	Long Lake
5	15.	Madison area lakes
1	109.	Marshmiller Lake
1	107.	Minnesota (northern)
3	35.	Namakogan River & lake
2	82.	Nelson Lake
1	22.	North Lake (Milwaukee?)
3	69.	Otter Lake (WI)
1	100.	Paonia Reservoir (CO)
4	81.	Pentenwell (also called Petenwell)
2	2.	Petosi
1	116.	Pewaukee Lake, WI
2	96.	Pike Lake
1	38.	Polk County
1	103.	Pools 1-27, St. Paul to St. Louis
1	83.	Pools 1 - 6
2	65.	Pool 2
4	64.	Pool 3
11	8.	Pools 4, 5, 5a and 6
5	57.	Pool 4
13	19.	Pool 5
10	30.	Pool 5a
31	9.	Pool 6
44	4.	Pool 9
3	84.	Pools 9 - 11
9	36.	Pool 10
1	7.	Pools 10 - 14
3	27.	Pool 11 / Dubuque, IA
2	43.	Pool 11
2	46.	Pools 12 and 13
1	42.	Pools 16 - 19
1	47.	Pools 17 and 19
1	25.	Pool Washonic
2	68.	Potato Lake
1	73.	Prairie Lake (WI)
1	3.	Prescott
2	63.	Red Cedar
1	101.	Reudi Reservoir (CO)
1	121.	Rock Lake
1	95.	Round Lake
1	94.	Sand Lake
1	39.	Sawyer County
1	111.	Sidie Hollow

2	18.	St. Croix
1	79.	St. Germain (Eagle River area)
1	33.	Teal Lake
1	53.	Trempealeau River
2	26.	Trempealeau Lakes
1	66.	Victory below Genoa
1	72.	Vilas County (WI)
1	106.	Wauseca
1	110.	Webb Lake (Spoonier)
1	98.	White River
1	120.	Wind Lake
1	77.	Wisconsin Dells
9	13.	Wisconsin River
2	24.	Wisconsin (Northern)
1	44.	Wisconsin (entire state)
1	85.	Wolf River
2	97.	Yellow Lake

Question 12b: Why did you come here today instead of one of those other places?

- 161/170 (95 percent) of those who boated other places gave a reason for coming to Pool 7 and 8
- 180 responses were given

Good Fishing

1	2.	Wanted to see if fish back again
5	14.	Fishing is better here
6	15.	Tournament here in future
3	25.	Fishing tournament today
4	30.	Hoped to catch fish; Heard fish were biting
1	31.	Didn't catch anything at other place last week
1	34.	Fishing was good last time

Close; Convenient; Familiar

6	3.	Usual spot
79	4.	Close; proximity; convenience
2	6.	Camping here
2	10.	Familiar
1	12.	Area where we grew up
8	18.	Time factor; not much time to go farther
3	27.	Staying in a cabin here
1	29.	Camping nearby

Friends; Family

- | | | |
|---|-----|--------------------------|
| 9 | 7. | Meeting friends / family |
| 1 | 41. | Show people the River |

New; Change of Pace

- | | | |
|----|-----|-------------------------------------|
| 11 | 13. | Change of pace; try the area |
| 1 | 24. | It has been awhile |
| 1 | 37. | Challenge of the mighty Mississippi |

Commercial Harvest

- | | | |
|---|-----|----------------------------------|
| 2 | 1. | Camping to go clamming; clamming |
| 1 | 21. | Trap turtles here |

Water Qualities; Natural Resource Features

- | | | |
|---|-----|--|
| 2 | 8. | Bigger body of water |
| 1 | 16. | Flow not as fast on Pool 7 |
| 1 | 19. | Calm water |
| 1 | 22. | River was too dirty (went to Third Lake instead of Pool 6) |
| 1 | 26. | Water was too low there |
| 1 | 35. | Water was too high there |
| 1 | 36. | Interesting scenery |

Facilities

- | | | |
|---|-----|------------------|
| 4 | 20. | Good launch site |
|---|-----|------------------|

Other Reasons

- | | | |
|---|-----|---|
| 4 | 9. | Like here better |
| 1 | 11. | Business brought him close to La Crosse |
| 2 | 17. | Work (Fish and Wildlife Service; Bird researcher) |
| 1 | 38. | Doing shopping in La Crosse |
| 1 | 28. | "To waste time" |
| 1 | 32. | Avoiding traffic from Riverfest |
| 5 | 33. | Vacation here |
| 1 | 39. | Annual trip with boat club |
| 2 | 40. | Test the boat |
| 1 | 42. | Can't get bored here with the long stretch of river |

Question 13a: Have you noticed any positive or negative changes on pools 7 or 8 in the last five years?

- 259/335 (77 percent) noticed at least one change
- 439 responses given

Fishing Worse

2	1.	Raising and lowering of water kills off spawning/affects fish;...has made fishing very poor
62	18.	Fishing is not as good; Fishing got poor; Fishing gone down
3	36.	More carp
4	41.	Lots of fish < 14" (not as many over 14")
2	46.	Bass - lost biggest part of fish; Bass fishing gone down
1	63.	Fishing got poor after clamming started
1	69.	They took out too much fish habitat when they straightened out the channel
1	75.	Dam releases mess up and dirty water which affects fishing
7	78.	Sunfish (panfish) population/fishing has gone down
2	85.	Dredging has cut down fishing
1	110.	No fish since Lake Onalaska dredged
1	174.	Pike fishing gone down

Fishing Improved

2	8.	Fishing (more and better)
1	95.	Good crop of walleye and saugers
1	108.	Riprapping created more fishing
2	120.	Fishing died off but coming back
1	131.	Catfishing better

Water Quality Decline

1	16.	Gotten ickier and more fish are floating
1	42.	Water clarity has worsened
3	65.	Water has gotten dirtier from pollution
1	101.	Lake Onalaska smells more
1	106.	More pollution

Water Quality Improvement

4	22.	Water is cleaner/quality improved; Less polluted; Less oil spills
3	49.	Less debris in water
1	124.	Water clarity has improved

Beaches/Shoreline Improved/Cleaner; More beach sites

- | | | |
|----|------|---|
| 1 | 6. | New stone on beaches |
| 5 | 7. | Riprapping |
| 10 | 29. | Less litter - cleaner; less broken glass around |
| 1 | 33. | Shorelines kept up well |
| 2 | 50. | Dredging made more islands, better for picnics |
| 2 | 71. | New beaches; sandbars changed; more beaches |
| 1 | 102. | Boat house area of Black River cleaned up |

Beaches/Shoreline/Islands are Dirty/Eroding

- | | | |
|---|------|---|
| 3 | 13. | Glass/sharp objects on beaches |
| 6 | 25. | Shoreline erosion |
| 9 | 28. | Fewer sand bars/beaches |
| 2 | 64. | Islands are disappearing; getting smaller |
| 2 | 84. | More garbage around |
| 1 | 100. | Lake maps do not clarify location of obstructions |
| 2 | 103. | Only some beaches get new dredge sand |
| 1 | 121. | Sand bars getting smaller |

Water Level Changes; Filling in of River and Backwaters

- | | | |
|----|-----|--|
| 4 | 12. | Water level dropping; water shallower |
| 14 | 34. | More sandbars; river filling in |
| 8 | 43. | Siltation (general) |
| 17 | 47. | Siltation in backwater sloughs and lakes; sloughs filling in |
| 2 | 54. | Siltation creates navigation problems |
| 2 | 56. | Siltation (due to barges, not pleasure craft) |
| 1 | 66. | Can't go as many places (due to siltation) |

Changes in Channel, Obstructions, etc. due to high water

- | | | |
|---|-----|---|
| 4 | 14. | Flooding changed the channel |
| 1 | 31. | A lot of downed trees that weren't there before |
| 1 | 38. | Changes in snag locations |
| 1 | 67. | High water changes things |

Dredging (Lake Onalaska and Main Channel)

- | | | |
|---|-----|--|
| 2 | 19. | Dredging made water rougher (Lake Onalaska) |
| 1 | 39. | Lake Onalaska dredging opened up more water (but fish habitat hasn't increased) |
| 5 | 40. | Dredging in Lake Onalaska |
| 2 | 89. | Lake Onalaska is more usable - fishing, docking, getting around better since dredged |
| 1 | 99. | Dredging Lake Onalaska removed debris and obstructions |

- 1 107. Improved Lake Onalaska with dredging

Changes in Aquatic Vegetation

- 16 2. Aquatic weed growth isn't like it used to be (fewer weeds); loss of weeds
 3 44. Weeds are dying off
 9 45. Too weedy; More weeds; Lot more weeds
 1 51. Loss of floaty vegetation
 1 55. Loss of vegetation due to surface runoff of Atrazine and fertilizers
 1 91. When nutrients of nitrates and phosphates were taken out affected growth of plants
 1 130. Celery grass is coming back

More Boat Traffic/Crowding

- 7 3. More and bigger boats in channel/everywhere
 42 17. Boat traffic (more); more crowded
 4 26. More jet skiers
 1 48. Sandbar beaches are more crowded
 1 68. Too many people on weekends
 2 98. More high speed bass boats
 2 149. More large boats; Too many large cruisers
 3 175. More water skiers

More Conflicts with Other Boaters

- 4 27. More careless boaters
 1 35. People are less polite to fishermen (come too close, cause wakes too close)
 1 52. Tournament fishermen have no respect for other boaters
 1 112. Quality of recreation is less for small boaters and fishermen
 3 113. Large boats create large wakes making it difficult to waterski; Big cruisers boat too fast and cause large wakes
 1 126. Boaters not observing no-wake zones

Facility Improvements

- 13 5. Landing has improved, is cleaner; improved launch
 3 30. Access to the river and number of landings have increased
 2 93. Wildcat - positive change in the park, more accessible
 1 94. People are trying to upgrade facilities
 1 123. Some picnic tables are now on islands
 1 125. Message board atop Lock 7 is informative

Facility Decline/Negative Changes

- | | | |
|---|------|--|
| 1 | 10. | Haven't fixed boat landings |
| 1 | 11. | People used to be able to camp out on the beach at Wildcat |
| 1 | 53. | No longer make firewood available |
| 2 | 62. | Green Island ramp has been in bad condition |
| 3 | 70. | Dock is gone from Trempealeau Landing |
| 1 | 86. | Nothing is marked anymore (direction markers) |
| 1 | 96. | No dock on Third Lake |
| 1 | 122. | Dresbach boat ramp has gotten dingy |

More Regulation, Patrol

- | | | |
|----|------|---|
| 13 | 20. | More slow-no wake zones, zones extended |
| 4 | 21. | Slow - no wake zones too long |
| 1 | 23. | Sheriff's patrol scares people off/intimidates/harasses |
| 3 | 58. | Increased enforcement (Positive comment) |
| 1 | 60. | DNR doing a good job on garbage and polluters |
| 1 | 74. | Too many rude law enforcement people checking for trouble makers |
| 5 | 76. | Sheriff's patrol - positive impact on safety, courtesy |
| 4 | 80. | Sheriff's patrol - negative |
| 1 | 83. | Speed zones were not posted in the past (better markings) |
| 5 | 114. | New speed limits on Black River/La Crosse area; More speed limits |

Changes in Wildlife Populations

- | | | |
|---|------|--|
| 4 | 4. | Zebra Mussels are around now; too many Zebra Mussels |
| 2 | 59. | Fewer ducks to hunt |
| 1 | 72. | More and bigger birds (herons, cranes, eagles) |
| 1 | 87. | Not as many minnows/frogs/hellgrammites |
| 1 | 88. | Crayfish went away and then came back |
| 1 | 104. | Few muskrats anymore |
| 1 | 105. | Zebra mussels 3 times as big as a few years ago |
| 1 | 119. | Heard clammers say business is slower |

Other Changes

- | | | |
|---|-----|--|
| 3 | 9. | Sandbar Marina was taken out |
| 3 | 15. | More positive than last year (Flood of 1993); water level back to normal |
| 3 | 24. | More housing and other development |
| 1 | 32. | We could go further up the La Crosse River than before |
| 5 | 37. | Higher water |

- | | | |
|---|-----|---|
| 3 | 57. | River hasn't been same since flooding |
| 2 | 61. | Wing dam destruction by barges; Wing dams damaged |
| 2 | 73. | Too many people fishing |
| 1 | 77. | More people fishing the wing dams |
| 1 | 79. | More friendly (people) |
| 3 | 90. | New islands down south/in Lake Onalaska |
| 1 | 97. | Barge fleet changed Broken Arrow Slough fishing |

Question 13b: Have these changes affected your enjoyment or use of pool 7 and 8?

- 186/259 (72 percent) mentioned at least one effect of a change they had noticed
- 232 responses were given

Fishing Worse/Less Enjoyable; Fish Less

- | | | |
|----|-----|--|
| 40 | 1. | Fishing has gone way down; not as much fun to fish; don't catch as many fish |
| 1 | 16. | Dredging - eliminated place to popper fish on Lake Onalaska |
| 2 | 30. | Difficult fishing wing dams because of boat traffic |
| 2 | 31. | Pan fishing declined |
| 9 | 32. | Don't fish as often as used to |
| 1 | 33. | Don't fish in tournaments anymore |
| 1 | 38. | Quality of fishing has decreased over 3 years by 85 percent |
| 2 | 44. | Don't fish for bass anymore |
| 5 | 48. | Fishing is more difficult |
| 1 | 50. | The channel filling in changed fishing locations |
| 1 | 54. | Don't want to eat fish from river now |
| 2 | 58. | Boaters/skiers' disregard for fishermen makes fishing less enjoyable |
| 1 | 62. | Hard to take kids out fishing since they don't have patience now that fishing is worse |
| 1 | 64. | Paid to go fishing at a pond (since don't catch fish on river anymore) |
| 1 | 67. | Fishing is worse - hurting his business (Fish Float) |
| 1 | 70. | Bass fishermen travel high speeds & monopolize resource (small boat fisherman) |
| 2 | 71. | Inhibit fishing in some areas (bass boats); less areas to fish (sedimentation). |
| 1 | 79. | Buy fish in a grocery store (instead of trying to catch fish on river) |
| 2 | 84. | Smaller fish |
| 1 | 94. | Gave up ice fishing |

Fishing Improved

- 3 5. Fishing is better

Negative Effects; Boating Less Enjoyable

- | | | |
|---|------|---|
| 1 | 4. | Fewer beaches available so they're more crowded |
| 1 | 6. | Without Sandbar Marina there isn't a place to stop and get a pop |
| 2 | 8. | Pain in the butt to load and unload boat at ramp |
| 1 | 9. | Took a lot of people away that used to camp at Wildcat, less fun now |
| 1 | 10. | Concerned about glass on beaches |
| 6 | 13. | Not as much fun/enjoyment |
| 5 | 18. | Takes too long to idle through no wake zones (like going at speed) |
| 2 | 20. | Enjoy less because of "harassment" by patrol; less freedom; misc. complaints about patrol |
| 7 | 21. | Get tossed around, more boat wakes; problem for small boats and fishermen; large wakes diminish enjoyment |
| 2 | 22. | Went to bigger boat for safety |
| 2 | 25. | Too many boats has led to decline of courtesy/etiquette, has made boating less pleasant |
| 2 | 27. | Skiers' wake damaged my boat in shallow, rocky water; Wakes damage boat |
| 1 | 29. | High water (in "93") ruined boating trips |
| 1 | 34. | Hit bottom with motor due to slough filling in |
| 2 | 36. | May have to cruise around looking for available sandbar beaches; less sandbar beaches to land on |
| 2 | 45. | Damage to equipment by bad ramp at Green Island |
| 2 | 46. | Noise and pollution are more visible |
| 1 | 47. | Without islands the navigation has gotten tougher |
| 1 | 55. | Water was dirty, high, and swift |
| 1 | 56. | Don't know what is legal or not |
| 2 | 57. | Worried about being pulled over by Sheriff/uptight |
| 1 | 61. | We got lost (due to lack of markers) |
| 1 | 63. | During winter the safe ice locations have changed |
| 1 | 66. | Getting too hectic out there |
| 1 | 73. | Less secure as to where to sail/boat/ski (afraid of shallows) |
| 2 | 78. | Riprapping and loss of beaches keep us from using some areas, limits access to beaches |
| 1 | 99. | (Litter) affects (hurts) aesthetic value of river |
| 1 | 138. | More dangerous |

Positive Effects (Boating Improved/More Enjoyable; Boat More)

- | | | |
|---|-----|--|
| 1 | 3. | Got rid of B.S. of last year (Wildcat Landing) |
| 5 | 11. | More positive place to come and use; more enjoyable |
| 2 | 17. | Dredging - made for deeper water - easier to run |
| 4 | 19. | River is environmentally more pleasing |
| 1 | 23. | Shorter wait to put in and take out |
| 2 | 39. | Come more frequently because of improved landing |
| 2 | 40. | Easier to launch |
| 2 | 41. | Safer with increased enforcement |
| 3 | 51. | Come more often (general); more enjoyment |
| 2 | 52. | Don't have to watch out for debris |
| 1 | 53. | Like using beaches more |
| 2 | 59. | (because there's) Not as much trash/litter |
| 1 | 60. | Feel more confident that you're doing everything right
(re. regulations posted at launch) |
| 1 | 69. | New islands = more areas to go to |
| 1 | 72. | Fewer shallow areas in Lake Onalaska (+) |
| 2 | 74. | Water quality is better |
| 1 | 77. | Easier to find way around |
| 2 | 98. | Safer for children on beach |

Changes in Activities; Use River Less

- | | | |
|----|------|--|
| 17 | 2. | Less use; Don't use pools as often, overall use has decreased |
| 1 | 12. | Don't go swimming anymore |
| 1 | 26. | Not likely to return |
| 2 | 28. | Couldn't get to favorite spot |
| 10 | 37. | Can't get through areas because too shallow; areas becoming inaccessible due to filling-in |
| 1 | 68. | Can't get through areas - too weedy |
| 1 | 76. | Came to Black River rather than Lake Onalaska |
| 1 | 83. | Use Long Lake, Second Lake and Third Lake more |
| 3 | 86. | Ski less; Shallow water limits waterskiing |
| 1 | 87. | More fussy since I got a new, expensive boat |
| 1 | 88. | Avoid backwaters |
| 1 | 90. | Do more inland activities |
| 1 | 95. | Do recreational fishing in Pool 7 rather than 8 (due to sedimentation) |
| 1 | 100. | Avoid Black River due to patrols by sheriff and DNR |
| 1 | 101. | Launch at Clinton West ramp now |

Avoid Busy Days/Times/Areas

- | | | |
|---|-----|--|
| 7 | 14. | Avoid weekends; Less use on weekends |
| 1 | 24. | Avoid Mississippi River on weekends, especially Dresbach to Genoa (Pool 8) |
| 1 | 35. | Get out onto water earlier to beat other people |

2	65.	Avoid crowded areas
2	75.	Stay off of main channel
2	85.	Use water less because of boat traffic
1	89.	Stay out of Pettibone/LaCrosse Area

Affects on Hunting

1	42.	Don't duck hunt anymore
1	80.	Don't hunt as often
1	81.	Duck hunting not as good
1	82.	Muskrat trapping down
1	93.	Potential for better duck hunting

Question 14: Are there changes you would like to see on Pools 7 and 8?

- 236/335 (70 percent) mentioned at least one change they'd like to see
- 389 responses were given

Changes to Fishery Management/Fishing Regulations

24	13.	More fish
4	19.	More fish habitat
1	37.	Do a study on barge impacts on fish populations
4	40.	Fishing - slot limits rather than minimum size limits
2	41.	Spring walleye fishing closed until state of Wisconsin opener
1	42.	Larger size limits for Northern
1	48.	Get rid of rough fish
1	73.	Catch and Release Only for walleyes in the spring
1	83.	Regulations for bass and walleyes need to be re-evaluated for compliance and effectiveness
1	95.	Close spring fishing season; Close fishing during spawning
1	106.	Like more info on where weeds and fish are
1	117.	Lower size limits on walleye
1	118.	Like to use 3 poles for catfish fishing
1	119.	Increase sauger bag limit
2	122.	Increase restrictions on panfish/crappie
2	149.	More cribs in Lake Onalaska
1	155.	Size limits on fish (more)
1	185.	Limit number of fishing tournaments; Close tournaments in certain areas
1	218.	Stop or change ice fishing season (to reduce over fishing)

Improvements to Sandbars and Beaches

- | | | |
|----|------|---|
| 4 | 9. | Add dredged sand to beaches; more sand on beaches |
| 3 | 22. | Sandbar maintenance |
| 11 | 23. | More sandbars/islands; dredge to create more sandbars |
| 1 | 32. | Maintain Pettibone beach |
| 4 | 33. | More beaches needed / Dredge to create beaches |
| 2 | 58. | Maintain beaches in general |
| 3 | 81. | Clean up beaches |
| 2 | 82. | Flatter beaches |
| 1 | 85. | Number or name the beaches with signs |
| 1 | 86. | Put picnic tables at larger beaches |
| 4 | 87. | Put trash cans at larger beaches |
| 1 | 109. | Improve beach at Goose island |
| 1 | 144. | More sandbars on Black River |
| 1 | 220. | Keep sandbars clear of brush and vines |

More Boater Training/Education; Better Boater Behavior

- | | | |
|---|------|---|
| 3 | 6. | More boater education/training in boater courtesy, effects of wakes, etc. |
| 5 | 25. | Training on boater safety / rules of the river |
| 1 | 90. | Public needs to be more informed on policy and procedures of locking |
| 1 | 221. | Patrols should educate jet skiers on proper use of river |
| 5 | 223. | Pleasure boaters learn to slow down for fishermen, smaller boats; More boater courtesy; Would like to see more boater safety practiced; Big boats stay clear of fishing boats; More consideration |

Changes in Patrol/Enforcement of Boating Regulations and Etiquette

- | | | |
|---|------|---|
| 1 | 4. | Do something about trouble from waterskiers |
| 2 | 15. | Less policing on river |
| 7 | 97. | More policing on river/...every day; More patrolling |
| 1 | 102. | Put police on landings to help out rather than harass |
| 1 | 103. | Pull over a houseboat and check it out rather than pulling over only pleasure boats |
| 2 | 136. | Expand the area of law enforcement/safety control |
| 4 | 203. | More enforcement of courtesy and safety regulations/ no-wake zones/speed limits; More control of pleasure boaters |

Limit/Zone/Disperse/Restrict Use

- | | | |
|---|-----|--------------------------------------|
| 1 | 3. | No big boats in channel on weekends |
| 6 | 5. | Keep bigger boats off/less big boats |
| 1 | 20. | Better distribution of use |
| 2 | 21. | Zoning on use and speed |

- | | | |
|---|------|--|
| 2 | 28. | Restrict number of boats on Mississippi |
| 1 | 66. | Disperse users more evenly |
| 1 | 67. | Boaters (less boats) not use backwaters to disturb panfish |
| 4 | 76. | Fewer people |
| 1 | 89. | Jet skiers/waterskiers restricted to main channel |
| 2 | 98. | Less boat traffic on Pool 8 |
| 1 | 99. | Create incentive for boaters to go to other pools |
| 1 | 138. | Too many (want fewer) jet skiers in the backwater; cut down on PWC in backwaters |

Restrictions on Boat Size/Horsepower

- | | | |
|---|------|---|
| 4 | 107. | Motor size restriction on Lake Onalaska / other areas |
| 1 | 127. | Maximum horsepower = 50 HP |
| 1 | 143. | Limit boat size on Black River |
| 1 | 159. | Institute boat size limit |

Changes in Policies on Commercial Traffic

- | | | |
|---|------|---|
| 3 | 12. | Less barge traffic |
| 1 | 72. | Fight harder to not allow projected barge increases |
| 1 | 77. | No commercial traffic on weekends |
| 2 | 78. | Check commercial traffic for oil leaks |
| 1 | 116. | Stop barge traffic on holiday weekends |
| 1 | 157. | Don't manipulate river for barges |

Changes In No-Wake Zones/Speed Limits

- | | | |
|---|------|--|
| 7 | 14. | Shorter no-wake zones |
| 3 | 26. | Eliminate no-wake zones |
| 2 | 57. | Speed limit on bass boats when within 100 feet of another boat |
| 1 | 115. | Put in a no-wake zone for at least 300 feet below locks |
| 1 | 130. | Speed limits;...on main channel from La Crosse to Brownsville |
| 2 | 135. | Change the no-wake zone on Black River south of the boat houses to a slow zone |
| 1 | 142. | 30 mph zone increased for boats > 19 feet |

More Dredging; Control of Siltation and Erosion

- | | | |
|----|-----|--|
| 1 | 29. | Riprapping around Red Oak Island |
| 1 | 31. | Make the lake deeper |
| 7 | 36. | More dredging to improve flow |
| 12 | 43. | Dredge siltation in backwaters for better access; Dredge backwaters; Make sloughs deeper |
| 2 | 44. | Control siltation to promote weed growth |
| 2 | 45. | Riprapping needed in backwaters to help prevent |

- siltation; more aggressive program to stop siltation of sloughs
- | | | |
|---|------|---|
| 1 | 50. | Dredge Lawrence Lake |
| 1 | 60. | More work on watershed management to control siltation |
| 1 | 61. | Construct islands to break flow of current into backwaters |
| 4 | 63. | Dredge around Goose Island |
| 3 | 74. | Riprap around islands and structures (to control erosion) |
| 1 | 88. | Dredge pool west of Lock 7 below dam |
| 1 | 91. | Main channel - Brownsville - made wider |
| 2 | 100. | Dredge channel to keep water level down |
| 1 | 124 | Dredge holes in backwater to create deep pools to hold fish |
| 1 | 131. | Widen main channel |
| 1 | 132. | Dredge east channel cut by Taylor Island |
| 1 | 141. | Create more flow through East Channel, Pool 8 |

Control Weeds/Improve Navigation in Backwaters

- | | | |
|---|------|---|
| 3 | 1. | Get rid of stumps |
| 1 | 35. | Make more channels in stumpfields of Lake Onalaska |
| 2 | 46. | Better secondary channel markings |
| 3 | 47. | Rake weeds out of Lake Onalaska |
| 1 | 49. | Eliminate weeds in (panfish) spawning areas |
| 1 | 51. | Dredge channels in stump fields |
| 4 | 52. | Raise water level in rivers and sloughs |
| 1 | 55. | Mark slough route to main channel |
| 1 | 62. | Put markers to main channel from Stoddard out earlier in year |
| 1 | 68. | Make easier access for Tang and Shingle Creeks |
| 1 | 108. | Chart courses through stumpfields for Brice Prairie |
| 1 | 112. | Identify (mark) rocks north of Barron Island |
| 2 | 114. | Eliminate weeds |
| 3 | 120. | Clear weeds to open up areas (Round Lake) |

Improve Water Quality; Pollution Control

- | | | |
|---|------|---|
| 2 | 64. | Get Twin Cities and other places to stop dumping sewage |
| 3 | 65. | Make water cleaner/less turbid/more clear; Could be cleaner everywhere on river |
| 1 | 71. | More point source pollution control |
| 1 | 101. | Be more conscious about industrial waste going into river |
| 1 | 123. | Keep on cementing in cattle yards to stop manure runoff |
| 1 | 129. | Increase water quality: ...high enough to swim in |

Improvements/Additions to Shore Facilities

20	7.	Improve the landing
6	8.	Add a dock; more places to tie up boats
4	10.	Make more eating places accessible to boats
1	11.	Change Wildcat/beach back to how it was managed last year so more people will come
6	16.	Pick up trash
1	24.	More picnic areas
1	34.	More volleyball courts at Pettibone
6	38.	Restroom at launch site
1	53.	Put another dock/ramp between Goose Island and 7th street ramps
4	54.	More landings around La Crosse area
9	56.	More garbage cans at launch
4	59.	Expand parking at launches
3	70.	Fix boat ramp/dock at Green Island
4	79.	Put a dock at the Trempealeau landing
2	80.	Make more Minnesota landings
1	121.	Put in a fish cleaning station
1	125.	Better road signs directing us to landings
1	139.	More docking at Pettibone
1	145.	More gas stations
1	146.	More landings for big boats on Pool 7
1	156.	Add a structured campground
1	217.	Improve Fishermen's Road
1	219.	More signage at launch sites on rules/regs./no-wake zones
1	222.	Put a pier at Second Lake like they did at Third Lake

Misc. Changes to Management Policies/Regulations

1	30.	Open islands for winter ATVs
4	39.	Get rid of skiers/Jet skis; Wish they'd outlaw jet skis; Less jet skis
1	75.	Put high taxes on big boats to cut their numbers
2	92.	Prevent big cruisers from creating large wakes
1	93.	Limit wake size (destroys shoreline, enjoyment of other boaters)
2	111.	Regulate jet skis
2	134.	Add a lock for recreation boats only at L&D #7
1	216.	Need more regulation of drinking

Fix/Build Wingdams

1	94.	Fix wing dams; Put wing dams back
1	196.	Build wing dams; More wing dams

Other Changes Desired

- | | | |
|---|------|---|
| 7 | 2. | Plant more weeds, pools 7 & 8 / get weed growth back |
| 1 | 17. | Less industrial odor south of Clinton Street |
| 4 | 18. | Less fluctuation of water levels; keep water at constant level |
| 7 | 27. | Mark wing dams; Install "Beware - Wing Dam" signs |
| 1 | 69. | Would like river to be like it was in 1945 |
| 1 | 84. | Slow water (water is too swift and dirty due to dam releases; fishing lousy) |
| 2 | 96. | Current map of wing dams needs to be available |
| 1 | 104. | Don't charge for public landings |
| 2 | 105. | Mark canoe trail/put canoe trail in |
| 1 | 113. | Keep river the same |
| 1 | 126. | More direction signs on river |
| 3 | 128. | Mark submerged obstructions or remove them |
| 1 | 133. | Eradicate poison ivy on islands |
| 1 | 140. | Get rid of boathouses |
| 1 | 154. | Keep zebra mussels out |
| 1 | 158. | Get more info at marinas about how to get to local restaurants |
| 1 | 191. | Require boaters to be responsible for their own trash; More respect for river in reference to trash |

Question 17a: Did you have any problems or conflicts with other visitors on Pools 7 and 8?

- 15/335 (4 percent) mentioned at least one problem or conflict
- 17 responses were given

Discourteous Behavior

- | | | |
|---|----|--|
| 1 | 1. | Loud Music |
| 1 | 2. | Drunks / drinking |
| 1 | 3. | Inappropriate behavior |
| 1 | 5. | Bank fishermen casting where the boat fishermen were casting |

Unsafe Boating/Ignoring Boating Rules

- | | | |
|---|-----|--|
| 2 | 4. | Other boaters ignoring no-wake zone |
| 3 | 7. | Bass boat/other boats came by too close and too fast |
| 1 | 13. | Almost hit by another's boat |

Personal Watercraft Problems

- | | | |
|---|----|---|
| 1 | 9. | Jet skis (operated unsafely, too close) |
|---|----|---|

Other Conflicts

- | | | |
|---|-----|--|
| 1 | 6. | In a narrow slough, a commercial fisherman cussed him out for being in the way of navigation |
| 1 | 8. | Had a knife pulled on him, and was aggressively confronted |
| 1 | 10. | Game warden |
| 1 | 11. | Canoeists get in the way; should keep closer to shore |
| 1 | 12. | Other people's dog barked at us |
| 1 | 14. | Boat house owner upset with me, claiming disobeying law, while I (jet skier) was within legal limits |

Question 17b: Did you have any problems with tow boats...?

- 2/335 (<1 percent) mentioned problems with tows
- 2 responses were given

Concern about Wakes/Other Safety Concerns

- | | | |
|---|-----|---|
| 1 | 1. | Tows were too big versus his canoe |
| 1 | 16. | Got trapped beside barge turning in WI island area- couldn't both fit through channel |

Question 17c: Did you see or experience any accidents or safety hazards...?

- 45/335 (13 percent) mentioned accidents or safety hazards
- 47 responses were given

Unsafe Boating (Threatened Respondent or Observed)

- | | | |
|---|-----|---|
| 3 | 4. | Boats speeding |
| 2 | 5. | Overloaded boats |
| 1 | 6. | Drunks |
| 1 | 7. | Fight |
| 2 | 8. | Speeding in No-wake zone |
| 1 | 11. | Boater safety course (unpredictable where boats were going) |
| 1 | 12. | Jet skiers riding by dam |
| 1 | 13. | Jet skiers jumping boat wakes |
| 1 | 15. | People not wearing PFD's |
| 1 | 16. | Boat not using right side of river |
| 1 | 17. | Runabouts pass close to wing dams / hit wingdam |
| 5 | 18. | Jet skiers too close to boat / jet skis in general |
| 2 | 19. | Large wake from a big boat came over gunwale; got flooded out by big wake |
| 1 | 20. | Water skiers too close to other boat |

1	23.	Boat cut in front of me
1	24.	Saw a boat too close to barges
1	25.	Kids paddling little paddleboat in busy area
1	26.	Boat (large) sped through no-wake zone creating 3-4 foot wake
1	27.	Skier in water with 1 boat ahead and 1 boat behind
1	28.	No red flag designating person in water
1	32.	Little kids sitting on bow of boat (could fall off)
1	34.	People smoking in gas fumes while trying to start dead motor

Accidents Observed or Happened to Respondent

1	1.	Kid fell out of boat
1	21.	Hit a rock
2	29.	Saw a cruiser run aground
1	33.	Fishing injury

Unsafe Behavior - Non-boaters

1	3.	Kids on the Onalaska spillway
1	14.	Person jumped off railroad bridge
1	22.	Girl running on Lock & Dam 7 wall

Physical Hazards

3	2.	Logs in the back sloughs/other places
1	9.	Submerged sandbar in area of faster boating
2	10.	Glass on beach
1	30.	Rock ledge hazard at WIMN/IA sign (Pool 9) wasn't marked
1	60.	Unmarked wingdams

Question 17d: Did you have any other problems during your visit?

- 24/335 (7 percent) mentioned other problems
- 25 responses were given

Other Problems

1	1.	Current causes boats to bang trailers (at Wildcat Landing)
10	2.	Mechanical problems with boat
2	3.	Stopped by sheriff; excessive number of enforcement people around La Crosse
2	4.	Hit a wingdam
1	5.	Conflicting advice on law from police boat
1	6.	Mechanical problems with vehicle

- | | | |
|---|-----|------------------------------------|
| 1 | 7. | Poison Oak (Ivy) |
| 4 | 8. | Wind/weather related problems |
| 1 | 10. | Hit something |
| 1 | 11. | Vandalism to vehicle |
| 1 | 14. | Had to pick up (others') beer cans |

Pools 7 and 8 Dock/Boat House Owners

N = 232

Question 3a: Are there other pools, rivers, or lakes where you do the same type of boating you do on Pools 7 and 8?

- 59/232 (25 percent) mentioned at least one other place they boat
- 91 responses were given

(Alphabetized list)

1	130.	Big Sandy Lake
7	34.	Black River (above Pool 7)
2	128.	Canada
1	59.	Canadian lakes
1	52.	Chetek
3	29.	Chippewa Flowage
1	168.	Duck Lake
1	167.	Florida ICW
1	41.	Hayward
1	123.	Holcombe Flowage
1	122.	Jump River (Holcomb)
1	5.	La Crosse River
4	58.	Lake Michigan
1	12.	Lake Neshonic
4	1.	Lake Pepin
1	131.	Lake-of-the-Pines
1	124.	Lake-of-the-Woods
1	129.	Lake Pokegama
4	20.	Lake Superior
1	14.	Leech Lake, Canada
1	62.	Long Lake
1	168.	Lower Eau Clair Lake
1	15.	Madison area lakes
1	170.	Mille lacs Lake (MN)
1	108.	Minong Flowage
1	127.	Minoqua Chain
1	35.	Namakogan River & lake
1	82.	Nelson Lake
1	125.	Oahe Reservoir
1	81.	Pentenwell (also called Petenwell)
1	83.	Pools 1 - 6
2	64.	Pool 3
2	8.	Pools 4, 5, 5a and 6
3	57.	Pool 4
7	19.	Pool 5
2	30.	Pool 5a
12	9.	Pool 6

9	4.	Pool 9
3	36.	Pool 10
1	95.	Round Lake
1	24.	Wisconsin (Northern)
1	85.	Wolf River

Question 10a: Do you have a favorite place or places to go on Pools 7 and 8?

- 177/232 (76 percent) mentioned at least one favorite location
- 242 responses were given

Pool 7 - Main Channel

1	1.	Beaches, mile 712
3	24.	Beach 706.5 (Dakota Island)
1	55.	Beaches, mile 713
1	56.	Miles 707-708
1	57.	Sloughs east of mile 710
2	59.	Beaches, mile 714
1	100.	Trempealeau area
1	101.	Mississippi ends of Webb and Spring Slough
3	102.	Trempealeau spillway
1	104.	Small slough below L&D 6 from Larry's Landing going south
4	106.	Richmond Island and water to west
2	114.	Dresbach Island (mile 705)
2	119.	Black Deer Area
2	124.	Pool 7 in general
2	128.	Hiawatha Island

Lake Onalaska

13	26.	Lake Onalaska
1	30.	Backwater sloughs east of mile 708
1	32.	Bay southeast of Bell Island
3	42.	Gibbs Flat
2	83.	Rosebud Island / East of Rosebud
1	89.	Lake Onalaska, north end
4	108.	Backwaters, Lake Onalaska to Mud Lake, mile 709
1	109.	Manmade islands, Lake Onalaska
1	110.	Black River north of Brice Prairie

Trempealeau Lakes

2	40.	Round Lake
1	81.	Round Lake
1	91.	Long Lake

2 107. Mud Lake

Pool 8 - Main Channel (and points west)

- | | | |
|----|------|--|
| 1 | 4. | Main Channel miles 696-697 (Isle La Plume) |
| 4 | 5. | Backwaters behind Broken Arrow Slough & Coney Island |
| 1 | 7. | Beach 690.5 / Crater Island |
| 1 | 10. | Around Wildcat Landing (very close) |
| 3 | 11. | Beach across from Wildcat Landing |
| 1 | 16. | Beaches 690.5-689.5, Crater Island |
| 1 | 17. | Beach 692 |
| 4 | 38. | South end of Target Lake/Target Lake (general) |
| 2 | 53. | Main channel between Lock 7 and I-90 bridge |
| 1 | 63. | Miles 687-688 |
| 12 | 66. | Mile 689, Brownsville area / beaches / general |
| 3 | 73. | Lock and Dam #7 |
| 3 | 84. | Coney Island |
| 1 | 97. | Beach, mile 702 |
| 4 | 122. | Pettibone Boat Club |
| 4 | 127. | Brownsville to Genoa |
| 8 | 131. | Lawrence Lake |
| 2 | 132. | Crosby Slough (mile 690) |

Black River

- | | | |
|----|------|--|
| 5 | 19. | North of Clinton Street (Black River) |
| 4 | 21. | Black River (in general)/ So. of I-90 bridge |
| 4 | 23. | Catgut Slough |
| 2 | 67. | Beach/Landing midway between I-90 and spillway |
| 1 | 74. | Onalaska Spillway |
| 10 | 120. | Black River - pool 8 - all |
| 1 | 123. | Black River - pool 7 |
| 3 | 125. | Richmond Bay |

Backwaters - West French Island

- | | | |
|---|------|--|
| 7 | 18. | East Channel |
| 5 | 22. | East Channel, mile 701-702/Jolynn Slough |
| 8 | 28. | French Slough / French Lake backwaters |
| 1 | 129. | French Island Spillway |
| 1 | 146. | Smith Slough |

Backwaters - East of Main Channel and South of Black River

- | | | |
|---|-----|---|
| 1 | 3. | West Goose Island backwaters |
| 6 | 6. | Backwaters between Goose Island & main channel to N, W, and S |
| 3 | 45. | Mile 694.5, Sloughs/beach east of main channel |
| 2 | 94. | Slough across from Wildcat |

1 111. South Goose Island backwaters

Backwaters (general)

26 60. Backwaters/Sloughs

Any beach/Beaches

4 9. Any open beach; Clean beaches

Other Non-specific or Large Areas

7 48. Wingdams

10 68. Main Channel in general (pools 7 & 8)

3 99. Our property

2 103. Fishing spots

1 112. Pool 8 (in general)

1 121. Tower Island (rec #128)

1 126. Arrowhead Slough

5 130. Raft Channel

1 144. The farther north the better (Black River dock owner)

Question 10b: Why is this/are those your favorite place(s)?

- 166/177 (94 percent) gave a reason for their favorite locations
- 268 responses given

Good Fishing

54 3. Good Fishing; Fish are there; Good ice fishing
 1 24. Rocks and wingdams provide fish habitat; walleyes
 2 47. We fish for panfish
 3 60. Walleye fishing
 1 69. Bass fishing
 1 71. Catfish are there

Good Beaches

11 18. Beaches (general); nice beach; Nice sandbars
 4 21. Slope of beach; grade of sand in water; nice beach; swimming
 1 25. Good place to take kids; safer for children (due to shallower water)
 3 33. Good for family activities/games (beach)
 1 40. Beaches are big
 1 94. Least crowded beaches, not wall-to-wall boats

Scenery; Wildlife; Other Natural Features

- | | | |
|----|-----|---------------------------------------|
| 18 | 1. | Nice scenery; Nice view; Sight-seeing |
| 11 | 10. | See wildlife/birds |

Calm/Shallow Water; Less Wakes/Current (Good for cruising/water skiing, etc.)

- | | | |
|---|-----|--|
| 3 | 5. | Get away from choppy channel; calm water; smooth water |
| 3 | 23. | Water calm - protected by wind; less current |
| 1 | 43. | Shallow water - safe for kids, swimmers;...good location to float, relax, etc. |
| 1 | 75. | Safe for kids; Safer |
| 6 | 77. | Good place to water ski/tube (calmer water) |
| 2 | 78. | Because it a no-wake zone |
| 1 | 79. | Not so many fast boats (on Black River) |
| 1 | 80. | Good place to Jet Ski ("more quiet") |
| 3 | 86. | Good place for swimming |
| 2 | 95. | Good for paddle-boating/canoeing |

Deeper Water; Less Obstructions

- | | | |
|---|-----|-------------|
| 1 | 74. | No wingdams |
|---|-----|-------------|

Solitude; Quiet; Fewer Boats; Less Traffic

- | | | |
|----|-----|---|
| 4 | 4. | Get away from big boats; less large boats |
| 21 | 17. | No people; quiet; peaceful; private; not crowded; remote |
| 33 | 20. | Less boat traffic; Get away from traffic |
| 1 | 26. | No water skiers |
| 1 | 55. | Get away from personal watercraft |
| 1 | 73. | Good sailing (because there are less motorboats on Lake Onalaska) |

See Friends/Family; Social

- | | | |
|---|-----|----------------------------------|
| 3 | 13. | People we know are here; friends |
|---|-----|----------------------------------|

Facilities/Services

- | | | |
|---|-----|----------------------------|
| 7 | 15. | Places to eat; restaurants |
|---|-----|----------------------------|

Close to Home; Convenient; Familiar

- | | | |
|----|-----|--|
| 4 | 8. | Easy to get in and out of; easy access |
| 11 | 9. | Handy; close; convenient |
| 20 | 16. | Own a shack on the water; cabin nearby; live there |

Other Reasons

12	31.	Like to hunt there; Duck hunt
2	34.	Entertainment at Bikini Yacht Club deck
1	36.	Cleaner
1	51.	Don't have idiots from La Crosse - safer
1	54.	Good home base
3	66.	Backwaters; channels and sloughs to explore
1	82.	Like to camp there
1	83.	Used to trap in area
1	87.	Variety of recreation
1	89.	Open to cruise; easy to boat on (Lake Onalaska)
1	93.	Don't have to use the lock
1	96.	Shady place to park boat

Question 11a: Are there any parts of Pools 7 and 8 you deliberately avoid?

- 133/232 (57 percent) mentioned at least one location they avoid
- 158 responses given

Pool 7

2	15.	Stumpfields east of mile 708
1	17.	Open water area in west Lake Onalaska
1	19.	Southern half, Lake Onalaska
1	20.	Richmond Island
1	42.	Second Lake
4	48.	Stump fields in Lake Onalaska

Pool 8 - Main Channel (and points west)

52	1.	Main Channel
4	2.	Wildcat Landing/Brownsville area
1	5.	Coney Island
2	6.	Miss. from Pettibone/Riverside Parks/bridge area north (above confluence, mile 698)
2	18.	Below confluence, miles 698-696 (La Crosse to Coney)
1	22.	Cass Street Bridge area
5	23.	Riverside Park/Pettibone Park/Confluence of Rivers
3	27.	Downtown La Crosse in general; La Crosse area traffic
1	34.	Main Channel mile 697
1	38.	Main Channel, Coney Island to L&D #7
2	40.	Mile 699, N. Barron Island; North end of West Channel
1	58.	Shallows south of Wildcat, mile 688
2	67.	West Channel

Black River

1	16.	Copeland area
1	41.	Black River south of the Railroad bridge
1	44.	Clinton Street to Railroad bridge
4	63.	Black River; Main channel of Black River
2	64.	Airport Beach to Onalaska Spillway
1	65.	Black River North of Clinton Street

East of Main Channel

1	52.	East Channel (when water is < 6 feet)
4	60.	Shallow sloughs across from Wildcat

Large or Non-specific Areas

7	3.	Locks; Right below locks and dams
10	9.	Where we know it's shallow
7	28.	Weekends
11	33.	Whole La Crosse area
2	37.	Where speedboats are
1	49.	Small beaches
1	50.	Stumps
1	53.	Side channels
5	55.	Wingdams
2	66.	Lock #7
3	68.	Backwaters
1	69.	Sandbars with drop offs
1	70.	Beaches (general)
2	71.	High use areas; Where there is a lot of traffic/skiers
2	72.	Jet Skiers; Where jet skiers are

Question 11b: Why do you avoid that/those parts of the river?

- 129/133 (97 percent) gave a reason for avoid locations
- 167 responses were given

Poor Fishing

1	9.	Poor fishing; Nothing to hold fish
3	34.	Difficult to fish

Undesirable Water Conditions (Current, Shallows, Obstructions)

10	4.	Stumps damage boat; boat damage (not specified)
2	8.	So filled in can't get through
2	10.	Too many weeds
12	11.	Too shallow; shallow areas

- | | | |
|---|-----|-------------------------------|
| 3 | 12. | Wing dams; wingdams hazardous |
| 1 | 14. | Strong current |
| 2 | 21. | Too many snags/stumps |
| 2 | 35. | Too many rocks |

Beaches Not as Desirable

- | | | |
|---|-----|---|
| 1 | 29. | Water depth drops too quickly (not good for landing boat or swimming) |
| 1 | 40. | Beaches too small for laying out |
| 1 | 50. | Unsanitary beaches |
| 1 | 58. | Beaches have human waste |

Too Many Boats/Wakes; Too Much Traffic

- | | | |
|----|-----|---|
| 12 | 1. | Boat pounded by other boat wakes; rough water |
| 59 | 2. | Too much boat traffic; congestion; very busy |
| 4 | 7. | Boats are getting bigger |
| 1 | 20. | Weekend traffic from pleasure boaters |
| 3 | 27. | Too many people; crowded |
| 3 | 36. | Too much traffic to relax or fish; Disturb fishing |
| 5 | 48. | Too big of wakes |
| 1 | 53. | Ski Club dominates the water (near French Island beach) |
| 4 | 56. | Big boats swamp small boats/boat too small |
| 1 | 57. | Too many water skiers |

Undesirable Behavior; Unsafe Boating

- | | | |
|----|-----|--|
| 10 | 5. | Careless boaters; Unsmart boaters; Crazy drivers; Too damn many nuts there |
| 1 | 25. | Drinking; Parties |
| 1 | 26. | Jet skiers (discourteous, operate PWC unsafely) |
| 2 | 32. | Speeders have no courtesy |
| 1 | 63. | Unacceptable risk; Dangerous |

Sheriff's Patrol/Law Enforcement

- | | | |
|---|-----|--|
| 5 | 54. | Sheriff's Patrol intimidates/harasses people |
|---|-----|--|

Other Reasons

- | | | |
|---|-----|--|
| 2 | 15. | Personal Preference; no interest in it |
| 3 | 19. | Barges |
| 1 | 31. | Avoid no-wake zones |
| 1 | 52. | Lock operators are rude |
| 3 | 55. | Takes too long to lock; too long a wait |
| 1 | 65. | Unknown when you will get back (due to having to wait for lockage) |

1 66. No longer pike fish

Question 12: What do you like best about Pool 7 and 8?

- 180/232 (78 percent) mentioned at least one feature they like best about the river
- 257 responses were given

Good Fishing

38	3.	Good fishing
2	33.	Year-round fishing
1	36.	Fish habitat; structure; rock; wingdams
1	38.	Panfish; Bluegill; Crappie
1	93.	Commercial fishing

Water Quality; Calm Water; Other Water Features

1	1.	No stumps
1	9.	Calm water; not as much current; clear water; safer to be on
5	20.	Clean
3	67.	Deeper water; depth
8	71.	Large area of water; Lots of room to cruise
12	73.	Backwaters; sloughs and back channels for relaxing

Facilities/Services

1	2.	Good Condition (facilities)
1	18.	Campground right there; camping in general
1	24.	Easy access ramp
2	80.	Well marked; channel clearly marked
1	81.	Restaurant on the river
2	102.	Marinas/restaurants are accessible

Good Beaches

15	26.	Sand bars and beaches
2	101.	Islands

Close; Convenient; Familiar

11	5.	Close to home
18	12.	Convenient
2	15.	Familiar with it; familiar territory
1	52.	Grew up here
3	58.	Boat is being kept close by/docked there
3	97.	Access to whole Mississippi

- | | | |
|---|------|------------------|
| 8 | 100. | Live there |
| 1 | 113. | Boat house there |

General Enjoyment; Good for Chosen Activities

- | | | |
|---|------|---|
| 2 | 10. | Nice atmosphere; like the area; like boating here |
| 1 | 22. | Good water skiing |
| 9 | 55. | Variety of activities; things to do |
| 2 | 103. | Quality outdoors lifestyle the river provides |

Family and Friends; Social Opportunities

- | | | |
|---|-----|---|
| 1 | 11. | Friends come here; visit with people; socialize |
| 1 | 17. | Lots of Action/Activity/Girl Watching |

Quiet; Relaxing; Peaceful; Low-Density Rec. Opportunities

- | | | |
|---|------|---|
| 3 | 4. | Always get away from a crowd here; less busy; not crowded |
| 4 | 21. | Quiet; peaceful; less busy |
| 9 | 23. | Less boat traffic |
| 1 | 76. | Good place to sail; stumps/shallows keep out motor boats |
| 1 | 109. | Almost no traffic (on Lake Onalaska) |

Scenery; Wildlife; Other Natural Features

- | | | |
|----|-----|--|
| 53 | 19. | Scenery; Aesthetics; Scenic beauty; The view |
| 12 | 31. | Ducks and other wildlife; eagles; herons |

Other Favorite Features

- | | | |
|---|------|---------------------------|
| 7 | 39. | Duck hunting |
| 1 | 83. | People are polite |
| 2 | 90. | Well controlled/patrolled |
| 2 | 99. | Trapping |
| 1 | 110. | Lake Onalaska |

Question 13a: Have you noticed any positive or negative changes on Pools 7 or 8 in the last 5 years?

- 172/232 (74 percent) mentioned at least one change they have noticed
- 282 responses were given

Fishing Declining

- | | | |
|---|----|---|
| 2 | 1. | Raising and lowering of water kills off spawning, affects fish/has made fishing very poor |
|---|----|---|

- | | | |
|----|------|--|
| 25 | 18. | Fishing is not as good; fishing got poor; lack of fish |
| 1 | 78. | Sunfish (panfish) population has gone down |
| 1 | 138. | Less weeds for fish |
| 1 | 145. | Too many fishing tournaments now |

Fishing Improved

- | | | |
|---|----|---------------------------|
| 1 | 8. | Fishing (more and better) |
|---|----|---------------------------|

Water Quality Decline

- | | | |
|---|------|----------------------------|
| 4 | 42. | Water clarity has worsened |
| 3 | 106. | More pollution |
| 2 | 139. | Water is too high (-) |

Water Quality Improvements

- | | | |
|----|-----|---|
| 11 | 22. | Water is cleaner/quality improved; less polluted; Less oil spills |
|----|-----|---|

Beaches Improved/Cleaner; More Beach Sites

- | | | |
|---|-----|---|
| 2 | 7. | Riprapping (on Pool 7; of chutes) |
| 4 | 29. | Less litter - cleaner; Less broken glass around |

Beaches/Shoreline/Islands are Dirty/Eroding

- | | | |
|----|------|--|
| 1 | 13. | Glass/sharp objects on beaches; More trash left on beaches |
| 9 | 25. | Shoreline/Island erosion increased |
| 14 | 28. | Fewer sand bars/beaches |
| 2 | 84. | More garbage around |
| 1 | 172. | Some sandbars are very dirty and need cleaning up |

Siltation; Filling in of River and Backwaters

- | | | |
|----|------|--|
| 1 | 12. | Water shallower (main channel areas) |
| 1 | 34. | More/Too many sandbars; River filling in |
| 7 | 43. | Siltation (general) |
| 24 | 47. | Siltation in backwater sloughs and lakes; sloughs filling in |
| 1 | 54. | Siltation creates navigation problems |
| 2 | 111. | No movement in backwaters/dead water; lack of flow to backwaters causes them to become clogged and full of weeds |
| 1 | 134. | Many sand bars popping up from high water (-) |
| 1 | 140. | Running Slough filling in |

- | | | |
|---|------|--|
| 3 | 177. | Raise and lower water level too often and too great amount; Water level changes too much; More fluctuation |
|---|------|--|

Changes in Aquatic Vegetation

- | | | |
|---|------|---|
| 9 | 2. | Aquatic weed growth isn't like it used to be (fewer weeds); no more weeds |
| 2 | 45. | Too weedy/more weeds; thick weed growth |
| 2 | 129. | Less weeds/algae in Lake Onalaska |
| 2 | 130. | Celery grass is coming back (+)/aquatic vegetation coming back |

Dredging (Lake Onalaska/Backwaters/Main Channel)

- | | | |
|---|------|---|
| 1 | 40. | Dredging in Lake Onalaska |
| 1 | 85. | Dredging changed some good fishing holes |
| 1 | 89. | Lake Onalaska is more usable - fishing, docking, getting around; better since dredged |
| 1 | 115. | Deeper channel |
| 1 | 128. | New Islands in Lake Onalaska (+) |
| 3 | 151. | More dredging being completed; dredging near Brownsville |

More Boat Traffic/Crowding; More Larger/Faster Boats

- | | | |
|----|------|--|
| 25 | 3. | More and bigger boats in channel/everywhere; boats getting bigger/faster |
| 26 | 17. | Boat traffic (more); more crowded; increased weekend traffic; Black River overused; Too much traffic; Too many boats |
| 10 | 26. | More jet skiers/water skiers |
| 2 | 98. | More high speed bass boats |
| 1 | 143. | Too much boat traffic since no-wake on St.Croix and Minneapolis area |
| 1 | 149. | Too many large cruisers that really belong on larger bodies of water |

More/New Regulations/Patrol

- | | | |
|---|------|---|
| 4 | 20. | More slow - no wake zones; No-wake zones extended |
| 1 | 58. | Increased enforcement - positive comment |
| 2 | 76. | Sheriff's patrol - positive impact on safety/courtesy |
| 1 | 80. | Sheriff's patrol - negative (patrol too aggressive) |
| 1 | 81. | No-wake zone from RR bridge to Clinton St. (Black River) (negative) |
| 2 | 114. | Speed limits |
| 2 | 146. | Increased enforcement - negative comment |

Facilities/Services Improved

- | | | |
|---|------|--|
| 2 | 5. | Landing has improved/is cleaner; improved launch |
| 1 | 136. | Main channel is marked well |

Increased Conflicts; More Problems with Other Boaters

- | | | |
|---|------|--|
| 9 | 27. | More careless boaters; boaters less considerate of wakes |
| 1 | 35. | People are less polite to fishermen |
| 3 | 52. | Tournament fishermen have no respect for other boaters; too many tournament fishing boats/bass boats |
| 2 | 113. | Large boats create large wakes making it difficult to waterski; large boats leaving dangerous wakes |
| 1 | 133. | Boaters do not observe the 100 ft. rule (no wake within 100 ft. of docks) |
| 1 | 147. | Increased boat traffic has resulted in rough water |

Wildlife related

- | | | |
|---|------|---|
| 1 | 4. | Zebra Mussels are around; too many Zebra Mussels |
| 3 | 59. | Fewer ducks to hunt |
| 1 | 72. | More and bigger birds (herons, cranes, eagles) |
| 1 | 104. | Few muskrats anymore |
| 1 | 116. | More wildlife |
| 1 | 127. | More waterfowl/waterbirds using backwater |
| 1 | 137. | The Cormorants are nesting in Lake Onalaska and eating all our fish |
| 1 | 144. | More nesting for Bald Eagles |
| 1 | 173. | Less "nature" seen on islands |

Changes in Channel/Obstructions due to High Water

- | | | |
|---|------|--|
| 1 | 142. | High water causes trees to be uprooted |
|---|------|--|

Other Changes Noticed

- | | | |
|---|------|---|
| 2 | 37. | Higher water during summer "low periods" |
| 1 | 74. | Boat house owners doing a better job of maintaining property |
| 2 | 90. | New islands down south/Lake Onalaska |
| 1 | 92. | Not as many boats |
| 1 | 109. | More attempts by Corps to raise dock fees (-) |
| 1 | 117. | Ripraping changed current flow |
| 1 | 118. | All types of vegetation are being reestablished - planting of oak trees |
| 1 | 132. | More snowmobiles |
| 5 | 135. | Increased commercial traffic |

1	141.	Current too strong much of the time
1	148.	Boaters more alert and cautious (due to increased traffic)
2	150.	People have put in plastic barrels on boat houses
1	152.	Less drunks
1	178.	Less law enforcement (-)
1	179.	Beaver damage to islands
1	180.	Walleye Spring tournaments
1	181.	Ice-out keeps knocking down trees on island (contributes to erosion of island)

Question 13b: Have these changes affected your enjoyment or use of Pools 7 and 8?

- 121/172 (70 percent) mentioned at least one effect of the changes they noticed
- 141 responses given

Fishing Worse/Less Enjoyable; Fish Less

14	1.	Fishing has gone way down; not as much fun to fish; don't catch as many fish
3	31.	Pan fishing declined
8	32.	Don't fish as often as used to
3	48.	Fishing is more difficult
3	58.	Boaters/skiers' disregard for fishermen
1	71.	Inhibit fishing in some areas; less areas to fish
1	106.	High water creates current too strong to fish
1	136.	Lack of (fish) cover in Lake Onalaska

Fishing Improved

3	5.	Fishing is better
---	----	-------------------

Boating Less Enjoyable; Negative Effects on River Recreation

3	4.	Fewer beaches available so they're more crowded
5	13.	Not as much fun/enjoyment
1	18.	Takes too long to idle through no wake zones (like going at speed)
1	20.	Enjoy less due to "harassment" by patrol; less freedom; misc. complaints about patrol
2	21.	Tossed around by boat wakes (problem for small boats)
4	25.	Decline of courtesy/poor boating etiquette make boating less pleasant
1	34.	Hit bottom with motor due to sloughs filling in

- | | | |
|---|------|---|
| 1 | 57. | Worried about being pulled over by Sheriff/uptight; always have to look over shoulder |
| 1 | 92. | Increase in noise by jet boats and air boats |
| 1 | 99. | (Litter) affects (hurts) aesthetic value of river |
| 1 | 110. | Wakes from large boats damage the shoreline |
| 1 | 112. | Shoreline erosion damaging private property |
| 1 | 116. | Dredging interferes with recreation users (dump sand on rec. sites near wildcat, noisy) |
| 1 | 117. | Beaches too steep for volleyball/games (due to erosion) |
| 2 | 135. | Increased erosion of shoreline |
| 1 | 137. | Island that protects boathouses rapidly disappearing due to traffic/wakes |
| 1 | 138. | It's way too dangerous |
| 1 | 139. | High water limits use |

Boating More Enjoyable; Boat More; Positive Effect on River Recreation

- | | | |
|---|------|--|
| 5 | 11. | More positive place to come and use; more enjoyable |
| 1 | 17. | Dredging made for deeper water - easier to run |
| 2 | 19. | Environmentally more pleasing |
| 1 | 39. | Come more frequently because of landing |
| 2 | 41. | Safer with increased enforcement |
| 1 | 51. | Come more often; more enjoyment |
| 1 | 52. | Don't have to watch out for debris |
| 1 | 59. | Not as much trash/litter |
| 1 | 69. | New islands = more areas to go to |
| 1 | 104. | Safer |
| 2 | 105. | Swimming more enjoyable due to improved water quality |
| 1 | 113. | Siltation keeps large boats out of backwaters (+) |
| 3 | 114. | Yes (no further explanation); "to some degree"; "slightly detrimental" |
| 1 | 128. | Better sailing |

Changes in Activities; Limited Area Used; Use River Less

- | | | |
|----|------|--|
| 6 | 2. | Don't use pools as often; overall use has decreased |
| 1 | 12. | Don't go swimming anymore |
| 1 | 22. | Went to bigger boat for safety |
| 1 | 28. | Couldn't get to favorite spot |
| 14 | 37. | Can't get through areas because too shallow; areas becoming inaccessible due to filling-in |
| 1 | 85. | Use water less because of boat traffic |
| 1 | 86. | Ski less; shallow water limits waterskiing |
| 1 | 103. | Avoid areas with snowmobiles |
| 1 | 107. | Don't boat as far from my dock |
| 2 | 108. | Use backwaters more |
| 1 | 115. | Boat slower and more careful to handle large wakes |

Avoid Busy Days/Times/Areas

- | | | |
|---|-----|--------------------------|
| 8 | 14. | Avoid weekends |
| 4 | 65. | Avoid crowded areas |
| 4 | 75. | Stay off of main channel |

Effects on Hunting/Other Wildlife Related Activities

- | | | |
|---|------|--------------------------------|
| 1 | 80. | Don't hunt as often |
| 2 | 81. | Duck hunting not as good |
| 1 | 102. | Enhanced birding opportunities |
| 1 | 134. | See more (wild)life |

Other Effects

- | | | |
|---|-----|---------------------------------------|
| 1 | 91. | Don't leave boat in water due to silt |
|---|-----|---------------------------------------|

Question 14: Are there any changes you would like to see on Pool 7 and 8?

- 147/232 (63 percent) mentioned at least one change they would like to see
- 201 responses were given

Changes in Fishery Management/Regulations

- | | | |
|---|------|--|
| 2 | 2. | Plant more weeds, pools 7 & 8 / get weed growth back |
| 4 | 19. | More fish habitat |
| 1 | 37. | Do a study on barge impacts on fish populations |
| 1 | 48. | Get rid of rough fish |
| 1 | 95. | Close Spring fishing season/...during spawning |
| 1 | 169. | Explain what happened to the fishing |

More Boater Training/Education

- | | | |
|---|-----|--|
| 3 | 6. | More training in boater courtesy |
| 2 | 25. | Training on boater safety/rules of the river |

Improvements to Sandbars and Beaches

- | | | |
|---|------|---|
| 6 | 9. | Add dredged sand to beaches; more sand on beaches |
| 8 | 23. | More sandbars/islands; dredge to create more sandbars |
| 4 | 33. | More beaches needed / Dredge to create beaches |
| 2 | 58. | Maintain beaches in general |
| 2 | 81. | Clean up beaches |
| 1 | 172. | Dredge sandbars & put sand back on islands |
| 1 | 180. | Permits for (island) campers so you can track abusers |
| 1 | 188. | Replace islands at Bullhead Chute |

- | | | |
|---|------|---|
| 1 | 212. | Signs on beaches telling users to clean up after themselves |
| 1 | 213. | Continue even harder with river, banks, and island clean-up |

Changes in Patrol/Enforcement of Boating Regulations and Etiquette

- | | | |
|----|------|---|
| 2 | 15. | Less policing on river |
| 1 | 92. | Prevent big cruisers from creating large wakes |
| 3 | 93. | Limit wake size (destroys shoreline, enjoyment of other boaters) |
| 10 | 97. | More policing on river/...every day; More patrolling; More enforcement |
| 1 | 102. | Put police on landings to help out rather than harass |
| 3 | 111. | Regulate jet skis |
| 3 | 136. | Expand the area of law enforcement/safety control |
| 1 | 148. | Control jet and air boats for noise |
| 1 | 177. | Law Enforcement should have Coast Guard License |
| 1 | 203. | More enforcement of courtesy and safety regulations/no-wake zones; More control of pleasure boaters |
| 1 | 204. | Less harassment by law officials; Safety patrol, not a police state on river |

Limit/Zone/Restrict/Disperse Use

- | | | |
|---|------|--|
| 3 | 5. | Keep bigger boats off/less big boats |
| 1 | 20. | Better distribution of use |
| 2 | 21. | Zoning on use and speed |
| 5 | 39. | Get rid of skiers / Jet skis |
| 2 | 89. | Jet skiers/water skiers restricted to main channel |
| 2 | 98. | Less boat traffic on Pool 8 |
| 1 | 110. | Restrict number of boats |
| 1 | 138. | Too many jet skiers in the backwater (want fewer); cut down on PWC in backwaters |
| 1 | 214. | Cut down on skiers in backwaters |
| 1 | 215. | Cut down on bass boats in backwaters |

Restrict Boat Size/Horsepower

- | | | |
|---|------|---|
| 4 | 107. | Motor size restriction on Lake Onalaska/other areas |
| 5 | 159. | Limit boat size in general |

Changes in Policies Regarding Commercial Traffic

- | | | |
|---|------|---|
| 4 | 12. | Less barge traffic |
| 1 | 37. | Do a study of barge impacts on fish populations |
| 1 | 134. | Add a lock for recreation boats only at L&D #7 |

Changes in No-Wake Zones/Speed Limits

- | | | |
|---|------|--|
| 6 | 130. | Speed limit on main channel from La Crosse to Brownsville; speed limits in general |
| 9 | 147. | More no-wake zones |
| 1 | 150. | No-wake zones around all boathouses |
| 1 | 174. | Regulate boats speeding out of lockage |
| 2 | 175. | No-wake from RR Bridge to Cass Street Bridge/Pettibone to Big Indian |
| 2 | 178. | Stop dangerous reckless speed of pleasure boats |
| 1 | 182. | Institute speed limit by boat houses |

More Dredging; More Control of Siltation and Erosion

- | | | |
|----|------|---|
| 8 | 36. | More dredging to improve flow |
| 17 | 43. | Dredge siltation in backwaters for better access; Dredge backwaters; Make sloughs deeper |
| 1 | 44. | Control siltation to promote weed growth |
| 1 | 45. | Riprapping needed in backwaters to help prevent siltation; more aggressive program to stop siltation of sloughs |
| 1 | 50. | Dredge Lawrence Lake |
| 2 | 74. | Riprap around islands and structures |
| 1 | 124. | Dredge holes in backwater to create deep pools to hold fish |
| 1 | 152. | Water flow should be deepened in Sumpter and Proudfoot |
| 2 | 153. | Open sloughs from Black River to increase flow |
| 4 | 161. | More shoreline protection; Assistance from Corps to control erosion |
| 1 | 162. | Dredge from Airport Beach to Onalaska Dam |
| 1 | 165. | Better access to Richmond Slough |
| 1 | 168. | Open up mouth of main sloughs |
| 1 | 170. | More current in French Lake to improve fishing |
| 1 | 171. | Dredge Smith Slough |
| 1 | 184. | Dredge Bullhead Slough |

Control Weeds/Improve Navigation in Backwaters

- | | | |
|---|-----|---|
| 1 | 1. | Get rid of stumps |
| 1 | 52. | Raise water level in rivers and sloughs |

Improve Water Quality; More Pollution Control

- | | | |
|---|------|--|
| 4 | 65. | Make water cleaner |
| 1 | 71. | More point source pollution control |
| 1 | 173. | Find out why Twin Cities gets away with using the Mississippi as their toilet; Control sewage from Twin Cities |

Improvement/Additions to Shore Facilities

- | | | |
|---|------|---|
| 1 | 7. | Improve the landing |
| 1 | 8. | Add a dock/more places to tie up boats |
| 1 | 10. | Make more eating places accessible to boats |
| 1 | 38. | Restroom at launch site |
| 1 | 183. | Toilets on sand bars |
| 1 | 190. | Launch at Camp 22 |

Misc. Regulation/Policy Changes

- | | | |
|---|------|--|
| 1 | 164. | Ban people pulling tubes with riders <16 yrs of age |
| 1 | 224. | Should have ramp and dock fees for boats (at public ramps) |

Other Changes Desired

- | | | |
|---|------|---|
| 4 | 18. | Less fluctuation of water levels |
| 1 | 27. | Mark wing dams |
| 1 | 131. | Widen main channel |
| 1 | 140. | Get rid of boathouses |
| 1 | 151. | More study |
| 1 | 160. | Stop snowmobiles from chasing deer & fox |
| 1 | 163. | Maintain 6' river stage at LaCrosse |
| 1 | 167. | Mark wingdam opening at mouth of West Channel/Broken Arrow Slough to relieve main channel traffic |
| 1 | 179. | Move Barge Fleeting area to Green Island |
| 1 | 181. | Too many agencies running the river that don't know what they're doing |
| 1 | 186. | Remove dredges permanently from main channel |
| 1 | 187. | Backwater under jurisdiction of one agency |
| 1 | 189. | Fight Zebra Mussels |

Question 17a: Did you have any problems or conflicts with other visitors on Pools 7 and 8?

- 68/232 (29 percent) mentioned at least one conflict or problem
- 70 responses were given

Discourteous Behavior

- | | | |
|----|-----|--|
| 1 | 3. | Inappropriate behavior |
| 15 | 15. | Pleasure boats have been making huge waves |
| 3 | 16. | Jet skies and speedboats are being used too close to boaters and shore |
| 1 | 17. | Ice fisherman leave mess |

- | | | |
|----|-----|---|
| 12 | 18. | Inconsiderate high speed boaters |
| 3 | 20. | Water Skiing in Narrow Slough, so I couldn't fish |
| 2 | 22. | Boats come too close to boathouses |
| 1 | 23. | People on beaches using fireworks |
| 1 | 24. | Little respect for other peoples property |

Unsafe Boating/Ignoring Boating Rules

- | | | |
|----|-----|---|
| 5 | 4. | Other boaters ignoring no-wake zone |
| 12 | 7. | Bass boats came by too close and too fast/other boats |
| 1 | 13. | Almost hit by another's boat |
| 6 | 19. | General ignorance of boating "Rules of the Road" |
| 2 | 21. | Always get swamped on Main Channel by big boats |

Personal Watercraft Problems

- | | | |
|---|-----|---|
| 4 | 9. | Jet skis (operated unsafely, too close, etc.) |
| 1 | 37. | Jet skis not slowing down for fishing boats |

Question 17b: Did you have any problems with tow boats while on Pools 7 and 8?

- 19/232 (8 percent) mentioned a problem with tows
- 21 responses were given

Tows Cause Erosion/Disrupting Bottom

- | | | |
|---|-----|--|
| 1 | 2. | Barges ruined a fishing hole |
| 1 | 8. | Barges should go away from the bank when exiting South Soo Line Bridge (causing erosion) |
| 1 | 9. | Damage the sandbars |
| 1 | 11. | They damage the river |
| 1 | 18. | Cause shoreline erosion |

Wakes/Other Safety Concerns

- | | | |
|---|-----|---|
| 1 | 4. | Tow Boat at Beacon Bay (no wake zone) caused large wake |
| 1 | 6. | Going too fast in Black River - big wakes |
| 1 | 19. | Too big, safety hazard for small boats |

Lock Usage/Conflicts

- | | | |
|---|----|--|
| 1 | 3. | Barge lockage should be on same schedule as recreation craft |
| 7 | 5. | Waiting/takes too long to lock; had to wait 2 1/2 hours; Lock travel is slow; Need better schedule for |

pleasure boat lockage

Other Complaints

- | | | |
|---|-----|--|
| 1 | 7. | They think they own the river |
| 1 | 10. | Dominate the entire river when switching @ Municipal Harbor Area |
| 1 | 12. | They pay nothing for use of Lock and Dam system and dredging |
| 1 | 15. | Too many at times; Too many on weekends |
| 1 | 22. | Tied to private property |

Question 17c: Did you see or experience any accidents or safety hazards while on Pools 7 and 8?

- 53/232 (22 percent) mentioned accidents or safety hazards they had seen
- 56 responses were given

Unsafe Boating (threatened respondents' or other boaters' safety)

- | | | |
|---|-----|--|
| 2 | 4. | Speeding |
| 2 | 5. | Overloaded boats |
| 3 | 6. | Dunks |
| 1 | 13. | Jet skiers jumping boat wakes |
| 1 | 17. | Runabouts pass close to wing dams/hit wingdam |
| 9 | 18. | Jet skiers too close to boat; Other jet ski complaints |
| 2 | 19. | Large wake from a big boat came over gunwale; Nearly capsized from cabin-cruisers large wake |
| 4 | 20. | Water skiers too close to other boat/dock |
| 2 | 24. | Saw a boat too close to barges |
| 4 | 35. | Bass boats speeding in backwaters |
| 5 | 36. | Large boat passing too close with large wake |
| 1 | 37. | Water Skiing without an observer |
| 3 | 38. | Children on ski sleds (knee boards?) |
| 1 | 39. | People fishing too close to dam |
| 1 | 40. | Jet Skiers seem to be operating unlawfully |
| 2 | 41. | Boaters do not know safe boating rules |
| 3 | 42. | Jet Skiers are a safety hazard |
| 1 | 44. | LaCrosse Queen travels outside of channel markers |
| 1 | 45. | Water skiing over wingdams |
| 1 | 46. | Large wakes when exiting locks |
| 1 | 54. | Water skiers too close to barges; in front of tow boat |
| 1 | 59. | Water skiing after dark |
| 1 | 61. | Young lady driving jet ski at top speed close to dock with tiny baby on lap |
| 1 | 62. | Irresponsible boat handling (close circles, speed) |
| 1 | 63. | Law enforcement tied up to buoys and run at night |

without running lights on

Accidents (observed or respondent involved)

- 1 43. Two Boats collided at night north of Brownsville

Physical Hazards

- 1 31. Narrow channel

Question 17d: Did you have any other problems during your last time out on Pools 7 and 8?

- 3 respondents mentioned other "problems"
 - 3. Stopped by sheriff; Excessive number of enforcement people around
 La Crosse
 - 15. Discovered fuel contaminate on beach
 - 16. Fish didn't bite

Pool 7 and 8 Marina Boaters

N = 224

Question 3a: Are there other pools, rivers, or lakes where you do the same type of boating as you do on Pools 7 and 8?

- 76/224 (34 percent) mentioned at least one other location they boat at
- 148 responses given

Other Lakes and Rivers Used (alphabetized list)

1	132.	Balsam Lake
1	34.	Black River (above Pool 7)
1	74.	Castle Rock flowage
1	143.	Freutras Lake
1	89.	Green Bay
1	133.	Green Lake
2	78.	Lake Arbutis (Hatfield, WI)
1	92.	Lake Couderea
1	141.	Lac Vienx Resort
3	58.	Lake Michigan
1	12.	Lake Neshonic
1	1.	Lake Pepin
1	142.	Lake of the Ozarks
1	145.	Lake Orelles
1	137.	Lake Rathbon
1	20.	Lake Superior
1	15.	Madison area lakes
1	139.	Ohio River
3	140.	Peterwell
1	96.	Pike Lake
1	103.	Pools 1-27, St. Paul to St. Louis
6	83.	Pools 1 - 6
1	65.	Pool 2
5	64.	Pool 3
11	8.	Pools 4, 5, 5a and 6
2	57.	Pool 4
8	19.	Pool 5
4	30.	Pool 5a
31	9.	Pool 6
28	4.	Pool 9
4	84.	Pools 9 - 11
9	36.	Pool 10
1	138.	Pool 12
1	43.	Pool 11
1	134.	Red River
1	135.	Rice Lake

6	18.	St. Croix
1	136.	Table Rock
1	24.	Wisconsin (Northern)
1	85.	Wolf River

Question 11a: Do you have a favorite place or places to go on Pools 7 and 8?

- 176/224 (79 percent) mentioned at least one favorite location
- 206 responses given

Pool 7 - Main Channel

8	24.	Beach 706.5 (Dakota Island)
1	25.	Beach 709
2	114.	Dresbach Island (mile 705)

Lake Onalaska

19	26.	Lake Onalaska
1	109.	Man-made islands, Lake Onalaska
1	137.	Sailing Club

Pool 8 - Main Channel (and points west)

14	5.	Backwaters behind Broken Arrow Slough & Coney Island
17	7.	Beach 690.5 / Crater Island
2	10.	Around Wildcat Landing (very close)
1	16.	Beaches 690.5-689.5, Crater Island
8	20.	Miles 698-689, Main Channel (confluence of Black & Miss. Rivers to Brownsville) La Crosse to Brownsville
1	29.	Waters around Coney Island
2	38.	South end of Target Lake / Target Lake (general)
3	53.	Main channel between Lock 7 and I-90 bridge
1	61.	Pool west of Lock 7 below dam
2	62.	Miles 695-696, Main channel (islands)
4	65.	Mile 699.5, beaches near East channel
33	66.	Mile 689, Brownsville area; Brownsville area beaches
1	73.	Lock and Dam #7
4	82.	Miles 697-702, Main Channel - La Crosse to Dresbach
4	84.	Coney Island
1	121.	Taylor/Tower Island
3	122.	Pettibone Boat Club
1	127.	Brownsville to Genoa
3	131.	Lawrence Lake
2	132.	Crosby Slough (mile 690)
3	134.	Turtle Island

- | | | |
|---|------|--------------------|
| 1 | 135. | Pettibone to Genoa |
| 1 | 138. | Power Island |

Black River

- | | | |
|---|------|--|
| 1 | 19. | North of Clinton Street |
| 5 | 67. | Beach/Landing midway between I-90 and spillway |
| 2 | 77. | Black River south of Clinton Street |
| 3 | 120. | Black River - pool 8 (all) |
| 2 | 125. | Richmond Bay |

Backwaters: West French Island

- | | | |
|---|-----|---|
| 2 | 18. | East Channel |
| 7 | 22. | East Channel, mile 701-702/Jollynn Slough |
| 5 | 28. | French Slough/French Lake backwaters |

Backwaters East of Main Channel and South of Black River

- | | | |
|---|------|--|
| 2 | 45. | Mile 694.5, Sloughs/beach east of main channel |
| 3 | 50. | Running Slough |
| 1 | 94. | Slough across from Wildcat |
| 1 | 105. | Bluff Slough |
| 1 | 147. | Wigwam Slough (west Goose Island) |

Backwaters (general)

- | | | |
|---|-----|-------------------------------|
| 3 | 60. | Backwaters/sloughs in general |
|---|-----|-------------------------------|

Any beach/beaches

- | | | |
|----|----|-------------------------|
| 17 | 9. | Any open beach; beaches |
|----|----|-------------------------|

Other

- | | | |
|---|------|--------------------------------------|
| 1 | 14. | La Crosse |
| 2 | 68. | Main Channel in general, pools 7 & 8 |
| 1 | 112. | Pool 8 (in general) |
| 1 | 133. | Midway Island |
| 1 | 136. | McGilvery Area |
| 1 | 139. | La Plume Slough |

Question 11b: Why is this/are those your favorite places?

- 171/175 (98 percent) gave at least one reason for their favorite locations
- 269 responses given

Good Fishing

- | | | |
|----|----|--|
| 10 | 3. | Good Fishing; Fish are there; Good ice fishing |
|----|----|--|

Good Beaches

- | | | |
|----|-----|---|
| 31 | 18. | Beaches (general); good beaches/sandbars |
| 27 | 21. | Slope of beach; Grade of sand in water; Nice beach; Good swimming spot; Best sand for camping and sunning; Easy to beach large boat |
| 10 | 33. | (Beach) Good for family activities/games |
| 1 | 52. | Kids like hill of sand |
| 1 | 61. | Can picnic on islands; Good beach for picnics; Like picnic tables on beach |
| 2 | 64. | (Beach) Good for camping; Like to stay overnight |
| 5 | 40. | Beaches are big |
| 5 | 88. | Beach is clean |
| 2 | 94. | Uncrowded beach |

Scenery; Wildlife; Other Natural Features

- | | | |
|----|-----|-------------------------|
| 15 | 1. | Nice scenery; Nice view |
| 1 | 10. | See wildlife/birds |

Calm/Shallow Water; Less Wakes and Current (Good for cruising/water skiing)

- | | | |
|----|-----|---|
| 7 | 5. | Get away from choppy channel; Calm water |
| 3 | 23. | Water calm - protected by wind; Less current |
| 2 | 25. | Good place to take kids; safer for children |
| 1 | 38. | Calm water for waterskiing/tubing; Good to ski there |
| 1 | 43. | Shallow water; safer for kids/swimmers |
| 1 | 63. | No current (see also #23); current not bad |
| 11 | 73. | Good place for sailing (less motorboats); really can't sail on main channel |
| 12 | 77. | Good place to ski/tube (smoother water; calm water) |
| 5 | 86. | Swimming; Safe swimming |
| 2 | 91. | Good place to anchor |

Deeper Water; Less Obstructions

- | | | |
|---|-----|-------------------|
| 1 | 53. | The water is deep |
|---|-----|-------------------|

Solitude; Quiet; Fewer Boats/Less Traffic

- | | | |
|----|-----|--|
| 1 | 4. | Get away from big boats; Less large boats |
| 19 | 17. | No people; Quiet; Private; Not crowded; Remote; Peaceful |
| 43 | 20. | Less boat traffic |
| 2 | 26. | No water skiers |

See Family/Friends; Social

- | | | |
|---|-----|---|
| 1 | 6. | Handy to drive to beach to meet friends |
| 4 | 11. | Someone can see you over there if they come to visit; Easy to meet up with people |
| 2 | 13. | People we know are here; Friends |

Facilities/Services

- | | | |
|---|-----|---------------------------|
| 4 | 15. | Places to eat/restaurants |
|---|-----|---------------------------|

Close to Home/Convenient/Familiar

- | | | |
|----|-----|--|
| 4 | 8. | Easy to get in and out of; Easy access |
| 16 | 9. | Handy; Close; Convenient |
| 1 | 72. | Handy for a few hours trip |

Other

- | | | |
|---|-----|---|
| 1 | 31. | Like to hunt there; Duck hunt |
| 1 | 56. | Close to Riverside Park/La Crosse |
| 2 | 66. | Backwaters; channels and sloughs to explore |
| 3 | 82. | Camping; Like to camp there |
| 5 | 87. | Variety of recreation |
| 2 | 89. | Open to cruise; easy to boat on |
| 2 | 90. | No La Crosse County Sheriff's Patrol |

Question 12a: Are there any parts of Pools 7 and 8 you deliberately avoid?

- 134/224 (60 percent) mentioned at least one location they avoid
- 150 responses given

Pool 7
(none)

Pool 8 - Main Channel (and points west)

- | | | |
|----|----|----------------------------------|
| 17 | 1. | Main Channel |
| 5 | 2. | Wildcat Landing/Brownsville area |

5	5.	Coney Island
1	7.	Main Channel mile 694 to 690
2	18.	Below confluence, miles 698-696 (LaX-Coney)
1	22.	Cass Street Bridge area
17	23.	Riverside Park area
5	67.	West Channel
1	73.	Minnesota side of channel (beaches)
1	74.	Pettibone harbor and area
2	75.	Cass Street to L/D #7; Municipal Harbor to L/D #7/I-90
3	76.	Taylor Island/Tower Island
3	77.	Brownsville and South
1	84.	Main channel miles 694-702 (Root River to L/D 7)

Black River and French Island

2	16.	Copeland Park area
3	41.	Black River south of the Railroad bridge
5	63.	Black River
1	65.	Black River north of Clinton Street

East of Main Channel

4	11.	Running Slough above Goose Island
---	-----	-----------------------------------

Non-specific

8	3.	Locks; right below locks and dams
9	9.	Where we know it's shallow
3	12.	Where there's too much current
3	28.	Weekends
25	33.	Whole La Crosse area
2	37.	Where speedboats are
2	39.	No-wake zones
6	55.	Wingdams
2	66.	Lock #7
5	68.	Backwaters
1	70.	Beaches (general)
2	71.	High use areas; Where there is a lot of traffic; Areas with rough water due to traffic
1	78.	Where there is no restaurant/Marinas
1	79.	Crowded areas
1	85.	Areas with stagnant water flow

Question 12b: Why do you avoid that/those parts of the river?

- 120/134 (90 percent) gave reasons for avoiding locations
- 142 responses were given

Poor Fishing

- | | | |
|---|----|------------------------------------|
| 1 | 9. | Poor fishing; Nothing to hold fish |
|---|----|------------------------------------|

Undesirable Water Conditions (Current, Shallows, Obstructions)

- | | | |
|----|-----|--|
| 10 | 4. | Potential to damage boat; Stumps damage boat |
| 8 | 11. | Too shallow/shallow areas |
| 1 | 12. | Wing dams |
| 4 | 14. | Strong current |
| 3 | 35. | Too many rocks |

Beaches Not as Desirable

- | | | |
|---|-----|--------------------------------------|
| 1 | 28. | Beaches too steep |
| 1 | 30. | Beaches not as nice |
| 4 | 50. | Litter/glass/garbage/cans on beaches |
| 2 | 64. | Debris in sand; beaches not as clean |

Too Many Boats/Wakes; Too Much Traffic

- | | | |
|----|-----|---|
| 4 | 1. | Boat pounded by other boat wakes; Rough water |
| 59 | 2. | Too much boat traffic; Congestion; Very busy |
| 1 | 20. | Weekend traffic from pleasure boaters |
| 1 | 27. | Too many people; Crowded |
| 6 | 48. | Too big of wakes; Traffic and wakes makes it hard to waterski |

Undesirable Behavior; Unsafe Boating

- | | | |
|---|-----|--|
| 9 | 5. | Careless boaters; Unsmart boaters; Crazy drivers; Too damn many nuts there |
| 1 | 26. | Jet skiers (undesirable behavior, unsafe) |

Sheriff's Patrol/Law Enforcement

- | | | |
|---|-----|--|
| 1 | 44. | Sheriff's patrol targets high speed boats with agility |
| 8 | 54. | Sheriff's Patrol intimidates/harasses people; Sheriff always there - can't relax |

Other

- | | | |
|---|-----|---|
| 4 | 15. | Personal preference; No interest in it |
| 4 | 31. | Avoid no-wake zones; Too much no-wake there |
| 1 | 42. | Perceive Locks and Dams to be dangerous |

3	55.	Takes too long to lock; too long a wait
2	59.	Speed Limits
1	60.	Enjoy cruising on river, not idling around
1	61.	No recreational sites
1	62.	Bridge prevents the mast from passing under

Question 13: What do you like the best about Pools 7 and 8?

- 174/224 (78 percent) mentioned at least one feature they like the best
- 224 responses given

Good Fishing

6	3.	Fishing; Good fishing
---	----	-----------------------

Water Quality; Calm Water; Other Water Features

3	9.	Calm water / not as much current / clear water / safer to be on
2	20.	Clean
2	71.	Large area of water
7	73.	Backwaters; sloughs and back channels for relaxing

Good Beaches

49	26.	Sand bars and beaches
----	-----	-----------------------

Facilities/Services

1	2.	Good Condition (facilities)
1	27.	Good boat launch
1	60.	Lots of landings
1	81.	Restaurant on the river
9	102.	Marinas/restaurants are accessible

Close; Convenient; Familiar

1	5.	Close to home
37	12.	Convenient
2	69.	La Crosse location
7	97.	Access to whole Mississippi

General Enjoyment; Good for Chosen Activities

3	10.	Nice atmosphere; Like the area; Like boating here
4	14.	Fun to be out; Get out/away
1	22.	Good water skiing
4	55.	Variety of activities; Things to do

- | | | |
|---|------|---|
| 6 | 75. | Sailboating; Good sailboating; Sailboat here, no powerboats |
| 2 | 103. | Quality outdoors lifestyle the river provides |
| 1 | 104. | Good Skiing |
| 2 | 105. | Camping |
| 1 | 107. | Good anchoring places |

Family and Friends; Social Opportunities

- | | | |
|---|-----|---|
| 2 | 11. | Friends come here: Visit with people; Socialize |
| 1 | 17. | Lots of Action/Activity/Girl Watching |

Quiet; Relaxing; Peaceful; Low-Density Rec. Opportunities

- | | | |
|---|-----|---|
| 3 | 4. | Always get away from a crowd here; Less busy; Not crowded; Many areas where you can go to where there is still no traffic |
| 2 | 6. | Like a wilderness in the back sloughs |
| 5 | 21. | Quiet; Peaceful; Less busy |
| 6 | 23. | Less boat traffic |
| 1 | 77. | Can relax and enjoy the ride |

Scenery; Wildlife; Other Natural Features

- | | | |
|----|------|--|
| 42 | 19. | Scenery: Aesthetics |
| 3 | 31. | Ducks and other wildlife; eagles; herons |
| 1 | 112. | Beautiful hills |

Other

- | | | |
|---|------|---------------------------|
| 1 | 39. | Duck hunting |
| 1 | 83. | People are polite |
| 1 | 90. | Well controlled/patrolled |
| 1 | 106. | Observing barge captains |
| 1 | 111. | Nice locks |

Question 14a: Have you noticed any positive or negative changes on Pools 7 or 8 in the last 5 years?

- 149/224 (67 percent) mentioned at least one change they have noticed
- 209 responses given

Fishing Worse

- | | | |
|---|-----|--|
| 8 | 18. | Fishing is not as good/gone down; Fishing got poor; Lack of fish |
| 1 | 73. | Too many people fishing |

Water Quality Decline

- | | | |
|---|-----|---|
| 2 | 65. | Water has gotten dirtier from pollution |
|---|-----|---|

Water Quality Improvement

- | | | |
|---|-----|---|
| 9 | 22. | Water is cleaner; Water quality improved; Less polluted |
|---|-----|---|

Beaches/Shoreline Improved/Cleaner; More Beach Sites

- | | | |
|---|------|--|
| 2 | 7. | Riprapping on Pool 7; Riprapping of chutes |
| 1 | 29. | Less litter - cleaner; less broken glass around |
| 1 | 33. | Shorelines kept up well |
| 2 | 71. | New beaches; Sandbars changed; More beaches |
| 2 | 103. | Only some beaches get new dredge sand; Piling dredged sand instead of creating beaches |

Beaches/Shoreline/Islands are Dirty/Eroding

- | | | |
|----|-----|--|
| 4 | 13. | Glass/sharp objects on beaches; More trash left on beaches |
| 24 | 25. | Shoreline erosion increased |
| 15 | 28. | Fewer sand bars/beaches |
| 1 | 64. | Islands are disappearing/getting smaller |
| 1 | 84. | More garbage around; Garbage worse |

Water Level Changes; Filling in of River and Backwaters

- | | | |
|---|------|--|
| 2 | 43. | Siltation (general) |
| 9 | 47. | Siltation in backwater sloughs and lakes; Sloughs filling in |
| 2 | 165. | Shoaling at Nelson Park Launch (-) |

Changes in Channel, Obstructions, etc. Due to High Water

- | | | |
|---|-----|---------------------------------------|
| 1 | 14. | Flooding changed the channel |
| 1 | 57. | River hasn't been same since flooding |

Dredging (Lake Onalaska and Main Channel)

- | | | |
|---|------|--------------------------------------|
| 1 | 107. | Improved Lake Onalaska with dredging |
| 2 | 151. | More dredging being completed |

Changes in Aquatic Vegetation

- | | | |
|---|-----|---|
| 4 | 2. | Aquatic weed growth isn't like it used to be (fewer weeds); No more weeds |
| 3 | 45. | Too weedy; More weeds; Thick weed growth |

- 1 51. Loss of floaty vegetation

More Boat Traffic/Crowding

- 8 3. More and bigger boats in channel/everywhere; Boats getting bigger and faster; Boats too fast
- 30 17. Boat traffic (more); More crowded; Increased/too much weekend traffic; Black River overused; Too much traffic
- 9 26. More jet skiers
- 2 159. Crowded beaches

More Conflicts with Other Boaters

- 7 27. More careless boaters; Boaters less considerate of wakes
- 1 52. Tournament fishermen have no respect for other boaters; Too many tournament fishing boats/Bass boats
- 1 164. More loud boats

Facility/Service Improvements

- 1 83. Speed zones were not posted in the past/better markings
- 1 156. Lock 7 people more friendly

Facility/Service Decline

- 4 9. Sandbar Marina was taken out; Less (boater accessible) services, food, etc.
- 1 86. Nothing is marked anymore (direction markers)
- 1 160. Wildcat poorly operated
- 1 161. Wildcat - limited beach access
- 2 163. Longer lockage waits

More Regulations, Patrol

- 1 20. More/extended slow/no-wake zones
- 9 23. Sheriff's patrol scares people off, intimidates/harasses boaters
- 1 76. Sheriff's patrol - positive impact on safety/courtesy
- 4 80. Sheriff's patrol - negative (patrol too aggressive)
- 2 81. No-wake zones from RR bridge to Clinton Street (does not like)
- 1 114. New speed limits on Black River/La Crosse area; More speed limits

Wildlife Related Changes

1 162. See more eagles

Other Changes Noticed

1 79. More friendly (people)
1 97. Barge fleetings changed Broken Arrow Slough fishing
6 135. Increase in commercial traffic
1 153. More tow boat groundings
5 154. Channel not as wide
1 155. Brownsville water level keeps changing
2 157. Less boat traffic
3 158. Better traffic flow - safer
1 166. Trees growing on island interferes with the wind
2 167. Current behind Holiday Inn (West Channel)
1 168. People are more courteous

Question 14b: Have these changes affected your enjoyment or use of Pool 7 and 8?

- 101/149 (68 percent) mentioned at least one effect of the changes they noticed
- 115 responses were given

Fishing Worse/Less Enjoyable; Fish Less

6 1. Largemouth #'s have gone way down (all fishing); Not as much fun to fish; Don't catch as many fish
1 32. Don't fish as often as used to
1 50. The channel filling in changed fishing locations

Negative Effects; Boating Less Enjoyable

4 4. Fewer beaches available so they're more crowded; Less enjoyment due to crowded beaches
1 10. Concerned about glass on beaches
11 13. Not as much fun/enjoyment
2 20. Less enjoyment because of harassment by sheriff's patrol; less freedom; misc. complaints about patrol
2 21. Tossed around - more boat wakes; problem for small boats/fishermen
2 25. Decline of courtesy/Poor boating etiquette made it less pleasant
1 34. Hit bottom with motor due to sloughs filling in
1 36. May have to cruise around looking for available sandbar beaches; less sandbar beaches to land on
2 57. Always have to look over shoulder

- | | | |
|---|------|---|
| 1 | 73. | Less secure as to where to sail/boat/ski (afraid of shallows) |
| 1 | 92. | Increase in noise (by jet boats/air boats/bass boats) |
| 1 | 97. | Boats are too fast; Speed (speed related complaints) |
| 1 | 111. | Less enjoyment due to increased jet skis (Jet skiers are annoying; drive very carelessly) |
| 1 | 114. | (Non-specific negative effects) To some degree; Slightly detrimental |
| 1 | 119. | Have to pick up others' trash |
| 4 | 121. | Takes too long to lock |
| 1 | 122. | Wildcat camping is less enjoyable |
| 1 | 123. | Beaches are unsanitary |
| 1 | 129. | Damages boats in the slips |

Positive Effects (Boating Improved/More Enjoyable; Boat More)

- | | | |
|---|------|---|
| 6 | 11. | More positive place to come and use; More enjoyable |
| 1 | 41. | Safer with increased enforcement |
| 1 | 74. | Water quality is better |
| 1 | 104. | Safer |
| 3 | 105. | Swimming is better due to improved water quality |
| 1 | 113. | Siltation keeps large boats out of backwaters (+) |
| 3 | 128. | Better sailing |

Changes in Activity; Use River Less

- | | | |
|---|------|--|
| 1 | 12. | Don't go swimming anymore |
| 9 | 14. | Avoid weekends; Less use on weekends |
| 7 | 37. | Can't get through areas because too shallow; areas becoming inaccessible due to filling-in |
| 6 | 85. | Use water less because of boat traffic |
| 1 | 86. | Ski less; Shallow water limits waterskiing |
| 1 | 88. | Avoid backwaters |
| 4 | 118. | Don't use beach, stay on boat |
| 1 | 140. | Avoid some sloughs now due to siltation |

Avoid Busy Days/Times/Areas

- | | | |
|---|------|--------------------------|
| 2 | 65. | Avoid crowded areas |
| 1 | 75. | Stay off of main channel |
| 1 | 126. | Avoid the area |
| 1 | 127. | Don't go to Brownsville |

Affects on Hunting/Other Wildlife-related Activities

- | | | |
|---|-----|--------------------------|
| 1 | 81. | Duck hunting not as good |
|---|-----|--------------------------|

Other Effects

- | | | |
|---|------|---|
| 2 | 124. | More attentive when I boat |
| 2 | 125. | Have to practice defensive driving |
| 1 | 130. | Sold property in Shore Acres |
| 1 | 141. | Hard to plan longer trips because of longer lockage waits |

Question 15: Are there any changes you would like to see on Pools 7 and 8?

- 124/224 (55 percent) mentioned at least one change they would like to see
- 162 responses were given

Changes to Fishery Management/Fishing Regulations

- | | | |
|---|------|---|
| 1 | 13. | More fish |
| 1 | 185. | Limit number of fishing tournaments; Close tournaments in certain areas |

Improvements/Maintenance to Sandbars and Beaches

- | | | |
|----|------|--|
| 3 | 9. | Add dredged sand to beaches; more sand on beaches |
| 1 | 22. | Sandbar maintenance |
| 40 | 23. | More sandbars/islands; Dredge to create more sandbars |
| 1 | 33. | More beaches needed; Dredge to create beaches |
| 2 | 81. | Clean up beaches |
| 1 | 82. | Need flatter beaches |
| 1 | 183. | Put toilets on sandbars |
| 3 | 198. | More island preservation |
| 1 | 220. | Keep sandbars clear of brush/vines; Clear brush on islands |
| 1 | 228. | Rebuild two islands by Stoddard channel |

More Boater Training/Education; Better Boater Behavior

- | | | |
|---|-----|---|
| 3 | 6. | More training/boater education (in boater courtesy, effects of wakes, etc.) |
| 1 | 25. | Training on boater safety/rules of the river |

Changes in Patrol/Enforcement of Boating Regulations and Etiquette

- | | | |
|---|------|---|
| 5 | 97. | More policing on river/every day; More patrolling; More enforcement |
| 1 | 136. | Expand the area of law enforcement/safety control |

- | | | |
|---|------|---|
| 3 | 203. | More enforcement of courtesy and safety regulations/no-wake zones; More control of pleasure boaters |
| 3 | 204. | Less harassment by law officials; Safety patrol, not a police state on river |
| 1 | 216. | Need more regulation of drinking; Continue policing of drunks |

Limit/Zone/Disperse/Restrict Use

- | | | |
|---|------|---|
| 1 | 5. | Keep bigger boats off/less big boats |
| 1 | 20. | Better distribution of use |
| 1 | 21. | Zoning on use and speed |
| 1 | 98. | Less boat traffic on Pool 8 |
| 1 | 110. | Restrict number of boats |
| 1 | 227. | Limit beach camping to one night (to prevent overuse and monopolizing of sites) |

Restrictions on Boat Size/Horsepower

- | | | |
|---|------|----------------------------|
| 2 | 159. | Limit boat size in general |
|---|------|----------------------------|

Changes in Policies on Commercial Traffic/Lockage

- | | | |
|---|------|--|
| 3 | 12. | Less barge traffic |
| 7 | 192. | Locking lanes for recreational boaters |
| 1 | 207. | Institute locking schedules |
| 1 | 226. | Restrict size of tows |

Changes in No-Wake Zones/Speed Limits

- | | | |
|---|------|---|
| 1 | 26. | Eliminate no-wake zones |
| 1 | 57. | Speed limit on bass boats when within 100 feet of another boat |
| 3 | 130. | Speed limit on main channel from La Crosse to Brownsville; Speed limits (in general); Control speed |
| 2 | 178. | Stop dangerous reckless speed of pleasure boats |

More Dredging; Control of Siltation and Erosion

- | | | |
|---|------|---|
| 2 | 36. | More dredging to improve flow |
| 1 | 43. | Dredge siltation in backwaters for better access; dredge backwaters; make sloughs deeper |
| 1 | 45. | Riprapping needed in backwaters to help prevent siltation; more aggressive program to stop siltation of sloughs |
| 1 | 74. | Riprapping around islands;...in main channel to control erosion |
| 4 | 131. | Widen main channel |

- ### *Control Weeds/Improve Navigation in Backwaters*

- ### *Improve Water Quality; Pollution Control*

- ### Improvements/Additions to Shore Facilities

- ### *Repair/Build Wingdams*

- Other Changes Desired*

- ## Appendix I Coded Responses to Open-Ended Survey Questions

- | | | |
|---|------|---|
| 1 | 209. | Opening of Black River RR bridge less of a hassle |
| 1 | 225. | Improve urban area waterfronts |

Question 18a: Did you have any problems or conflicts with other visitors while on Pools 7 and 8?

- 47/224 (21 percent) mentioned a problem or conflict they had experienced
- 48 responses given

Discourteous Behavior

- | | | |
|---|-----|---|
| 3 | 1. | Loud Music |
| 3 | 15. | Pleasure boats have been making huge waves; Just about got bounced out of boat by another boaters discourteous wake; Chased off channel by cruisers speeding out of L/D 7 causing large wakes |
| 3 | 18. | Inconsiderate high speed boaters; Some boaters don't have any respect (cause wakes, etc.) |
| 1 | 22. | Boats come too close to boathouses/drive by boathouses at high speed |
| 1 | 23. | People on beaches using fireworks |
| 1 | 25. | Noisy boats |
| 4 | 26. | People leaving trash on beach |
| 1 | 36. | Speedboats do not give houseboats wide berth |

Unsafe Boating/Ignoring Boating Rules

- | | | |
|---|-----|---|
| 1 | 4. | Bass/Walleye tournament fishermen/other boaters ignoring no-wake zone |
| 8 | 7. | Bass boats/other boats came by too close and too fast |
| 1 | 16. | Jet skies and speedboats are being used too close to boaters and shore |
| 5 | 19. | General ignorance of boating "Rules of the Road" |
| 1 | 21. | Always get swamped on main channel by big boats; Wakes from large cruisers who pass too close |
| 1 | 30. | Most people enter locks very courteously, then run over each other when leaving |

Personal Watercraft Problems

- | | | |
|---|----|---|
| 6 | 9. | Jet skis (problem not specified); Jet ski crossed dangerously crossed in front of our boats |
|---|----|---|

Other Conflicts

- | | | |
|---|-----|-------------------|
| 1 | 10. | Game warden |
| 3 | 27. | Crowded sand bars |

- | | | |
|---|-----|---|
| 1 | 28. | Dogs running free |
| 1 | 29. | People moved my campsite while I was gone |
| 1 | 31. | La Crosse County Sheriffs Patrol |
| 1 | 32. | Someone stole the motor from my boat at the La Crosse Sailboat Club |

Question 18b: Did you have any problems with tow boats while on Pools 7 and 8?

- 23/224 (10 percent) mentioned a problem with tows
- 24 responses given

Tows Cause Erosion/Disrupt Bottom

- | | | |
|---|-----|--|
| 1 | 8. | Barges should go away from the bank when exiting South Soo Line Bridge |
| 2 | 11. | They damage/dirty up the river |
| 1 | 18. | Cause shoreline erosion |

Tows Cause Large Wakes/Other Safety Concerns

- | | | |
|---|-----|---|
| 1 | 13. | Tows make excessive wake by boat slip |
| 1 | 16. | Meeting tows on a curve, not much room |
| 1 | 17. | Almost got run over when had boat trouble |
| 1 | 19. | Too big, safety hazard for small boats |
| 1 | 20. | Difficult to see the front of barges at night |

Lock Usage/Conflicts

- | | | |
|---|-----|--|
| 1 | 3. | Barge lockage should be on same schedule as recreation craft |
| 9 | 5. | Waiting/takes too long to lock; had to wait 2 1/2 hours; Lock travel is slow |
| 1 | 21. | Seem to occupy locks at busier recreational times |

Other Complaints

- | | | |
|---|-----|--|
| 1 | 12. | They pay nothing for use of L/D system, dredging |
| 1 | 14. | When camped on sand bars, they spot light us |
| 2 | 15. | Too many at times/weekends |

Question 18c: Did you see or experience any accidents or safety hazards while on Pools 7 and 8?

- 52/224 (23 percent) mentioned an accident or safety hazard they had seen or experienced
- 58 responses were given

Unsafe Boating (Threatened respondents' or other boaters' safety)

4	4.	Speeding
3	5.	Overloaded boats
3	6.	Drunks; Drinking on boats
1	13.	Jet skiers jumping boat wakes
1	15.	People not wearing PFD's
4	17.	Runabouts pass close to wing dams/hit wingdam; Idiots driving at speed over wingdams
12	18.	Jet skiers too close to boat; Other jet ski complaints
5	20.	Water skiers too close to other boats/docks
1	26.	Large boat sped through no-wake zone creating 3-4 foot wake
5	36.	Large boat passing too close with large wake;...running too fast creating large wakes
1	41.	Boaters do not know safe boating rules
1	46.	Large wakes when exiting Locks
1	49.	Jet skis used to be, but not in past couple of years
1	53.	Jet skis too close to barges
1	54.	Water skis too close to barges/in front of tow boats

Accidents/Near Accidents (Observed or respondent involved)

1	29.	Saw a cruiser run aground
1	50.	Got hit by a houseboat
1	52.	Hit submerged (something) that damaged lower end (mile 682)
1	55.	Almost drowned swimming in unfamiliar waters (current)
1	57.	Almost collided with a barge at night

Physical Hazards

2	10.	Glass on beach
1	47.	Current by Bikini Yacht Club
2	48.	Old buoys in the water
2	51.	Floating branches/debris
2	56.	Stumps

Question 18d: Did you have any other problems your last time out on Pools 7 and 8?

- 2/224 (<1 percent) mentioned an "other problem"
- 2 responses given

1	4.	Nicked a wing dam with prop
1	6.	Mechanical problems (generator)

Pool 7 and 8 Lock Users

N = 104

(The "Lock User" survey population consists of boaters using Pools 7 and/or 8 who entered the river outside those pools and who came into the study area through Lock 6 or Lock 8.)

Question 3: Please list the Pool or Pools of the Mississippi River you use most often.

- 100/104 (96 percent) listed at least one pool
- Listed one pool 24/104 (23%)
- Listed two pools 39/104 (38%)
- Listed three pools 19/104 (18%)
- Listed four pools 18/104 (17%)

1	1. Pool 1
12	2. Pool 2
23	3. Pool 3
20	4. Pool 4
20	5. Pool 5
19	6. Pool 6
24	7. Pool 7
24	8. Pool 8
23	9. Pool 9
28	10. Pool 10
15	11. Pool 11
9	12. Pool 12
6	13. Pool 13
5	14. Pool 14
1	15. Pool 15
1	19. Pool 19

Question 4: Are there other rivers or lakes where you do the same type of boating you do on Pools 7 and 8? (alphabetized list)

- 48/104 (46 percent) mentioned other rivers and/or lakes they use
- 76 responses were given

1	169.	Big EauPleine Flowage
1	34.	Black River (above Pool 7)
1	74.	Castle Rock flowage
2	29.	Chippewa Flowage/River
2	149.	Clear Lake
1	159.	Cress Lake

1	17.	Crystal Lake
1	164.	Cumberland
1	86.	Fox River
2	133.	Green Lake
1	123.	Holcombe Flowage
1	152.	Horseshoe
1	160.	Illinois River
1	161.	Kentucky Lake
2	158.	Lake Delhi (IA)
2	154.	Lake Dubay
2	165.	Lake Koshkonong
2	58.	Lake Michigan
1	156.	Lake Minoqua
6	20.	Lake Superior
4	150.	Lake Wissota
1	62.	Long Lake
4	15.	Madison area lakes
2	151.	Minnesota River
1	147.	Ozarks
1	140.	Peterwell
1	121.	Rock Lake
19	18.	St. Croix
2	162.	Tennessee River
1	155.	Tomahawk
1	153.	Whitefish
7	13.	Wisconsin River

Question 12a: Do you have a favorite place or places to go on Pools 7 and 8?

- 37/104 (36 percent) mentioned a favorite location
- 46 responses were given

Pool 7: Main Channel

1	24.	Beach 706.5 (Dakota Island)
1	25.	Beach 709
1	54.	East of Pigeon Island
1	55.	Beaches, mile 713
2	102.	Trempealeau spillway; Area/island below Trempealeau dam
2	114.	Dresbach Island and area beaches

Lake Onalaska

1	26.	Lake Onalaska
---	-----	---------------

Pool 8-Main Channel (and points west)

3	46.	Bikini Yacht Club
6	66.	Mile 689, Brownsville area / beaches / general
1	79.	Mile 699 - beaches across from Pettibone Park
5	122.	Pettibone Boat Club

Black River

3	120.	Black River - pool 8 - all
1	142.	Beacon Bay

Backwaters: West French Island

1	18.	East Channel
---	-----	--------------

Other Locations

6	9.	Any open beach
6	14.	La Crosse
1	68.	Main Channel in general, pools 7 & 8
3	140.	Marinas (general)
1	143.	La Crosse Municipal Harbor

Question 12b: Why is this/are those your favorite places?

- 35/37 (95 percent) gave a reason for their favorite location(s)
- 55 responses were given

Good Fishing
(none)

Good Beaches

2	18.	Beaches (general)
7	21.	Slope of beach: Grade of sand in water, Nice beach; Good swimming spot; Good beach for swimming; Best sand for camping and sunning

Scenery; Wildlife; Other Natural Features

3	1.	Nice scenery/nice view
1	92.	Large body of water

Calm/Shallow Water; Less Wakes and Current (Good for cruising/water skiing, etc.)

1	77.	Good place to ski/tube (smoother water; calm water)
---	-----	---

2 86. Swimming; Safe swimming

Solitude; Quiet; Fewer Boats

1 17. No people; Quiet; Private; Not crowded; Remote;
Peaceful
2 20. Less boat traffic
3 26. No water skiers

See Friends/Family; Social

3 13. People we know are here; Friends
3 33. Good for family activities/games

Facilities Related

5 15. Places to eat/restaurants
7 81. Nice marinas; Clean and friendly marinas; Easy to
dock at marina

Close to Home/Convenient/Familiar

2 8. Easy to get in and out of; Easy access
2 9. Handy; Close; Convenient

Other

2 36. Cleaner; Black River clean - nice to anchor
3 56. Close to Riverside Park/La Crosse
2 82. Camping; Like to camp there
4 87. Variety of recreation

Question 13a: Are there any parts of Pools 7 and 8 you deliberately avoid?

- 9/104 (9 percent) avoided at least one location
- 10 responses were given

Pool 7

1 80. Beach (mile 708.5)

Pool 8 - Main Channel (and points west)

1 40. Mile 699, N. Barron Island
3 82. Bikini Yacht Club

1 83. Lock 8

Black River and French Island

(none)

East of Main Channel

(none)

Non-specific

1	55.	Wingdams
2	68.	Backwaters
1	72.	Jet Skiers

Question 13b: Why do you avoid that/those parts of the river?

- 9/9 (100 percent) gave a reason for avoiding a location.
- 9 responses were given

Undesirable Water Conditions (Current, Shallows, Obstructions)

1	11.	Too shallow/shallow areas; Boat too big for backwaters /shallows
3	14.	Strong current
2	35.	Too many rocks

Other

1	3.	Not familiar with it
1	52.	Lock operators are rude
1	63.	Unacceptable risk/dangerous

Question 14: What do you like best about Pools 7 and 8?

- 44/104 (42 percent) mentioned a feature they like best
- 47 responses were given

Water Quality; Calm Water; Other Water Features

1	9.	Calm water; Not as much current; Clear water; Safer to be on
1	73.	Backwaters; sloughs and back channels for relaxing

Good Beaches

7 26. Sand bars and beaches

Facilities/Services

6 102. Marinas/restaurants are accessible

Close; Convenient; Familiar

1 12. Convenient
1 69. La Crosse location
1 97. Access to whole Mississippi

General Enjoyment; Good for Chosen Activities

1 10. Nice atmosphere / like the area / like boating here
1 55. Variety of activities / things to do
1 103. Quality outdoors lifestyle the river provides

Quiet and Solitude

1 21. Quiet; peaceful; less busy
4 23. Less boat traffic

Scenery; Wildlife; Other Natural Features

12 19. Scenery / aesthetics

Other

1 83. People are polite
8 108. Lockmaster

Question 15a: Have you noticed any positive or negative changes on Pools 7 or 8 in the last 5 years?

- 24/104 (23 percent) noticed at least one change
- 28 responses given

Fishing Worse

1 18. Fishing is not as good/gone down; Fishing got poor;
Lack of fish

Water Quality Decline

1 65. Water has gotten dirtier from pollution

Water Quality Improvement

- | | | |
|---|-----|---|
| 4 | 22. | Water is cleaner; Water quality improved; Less polluted |
|---|-----|---|

Beaches/Shoreline Improved/Cleaner; More Beach Sites

- | | | |
|---|-----|---|
| 1 | 29. | Less litter - cleaner; less broken glass around |
| 3 | 71. | New beaches; Sandbars changed; More beaches |

Beaches/Shoreline/Islands are Dirty/Eroding

- | | | |
|---|-----|-----------------------------|
| 1 | 25. | Shoreline erosion increased |
| 1 | 28. | Fewer sand bars/beaches |

More Boat Traffic/Crowding

- | | | |
|---|-----|---|
| 3 | 17. | Boat traffic (more); More crowded; Increased/too much weekend traffic; Black River overused; Too much traffic |
| 1 | 26. | More jet skiers |

More Conflicts

- | | | |
|---|-----|--|
| 1 | 27. | More careless boaters; Boaters less considerate of wakes |
|---|-----|--|

More Regulations/Patrol

- | | | |
|---|-----|---|
| 2 | 76. | Sheriff's patrol - positive impact on safety/courtesy |
|---|-----|---|

Facilities/Service Improvements

- | | | |
|---|------|-----------------------------|
| 2 | 169. | Lock Information Board |
| 1 | 156. | Lock 7 people more friendly |
| 2 | 171. | Lock people friendlier |

Other

- | | | |
|---|------|--------------------------------|
| 2 | 135. | Increase in commercial traffic |
| 1 | 168. | People are more courteous |
| 1 | 170. | More poison ivy |

Question 15b: How have these changes affected your enjoyment or use of Pools 7 and 8?

- 15/24 (63 percent) mentioned at least one effect of the change or changes they have noticed
- 16 responses given

Fishing Worse/Less Enjoyable; Fish Less

1 32. Don't fish as often as used to

Negative Effects; Boating Less Enjoyable

2 121. Takes too long to lock
1 132. Plant growth on islands encroaches on the beach

Positive Effects (Boating Improved/More Enjoyable/Boat More)

4 11. More positive place to come and use / more enjoyable
1 41. Safer with increased enforcement
2 51. Come more often (general) / more enjoyment
1 105. Swimming is better due to improved water quality
1 131. Nicer locking through

Changes in Activity; Use River Less

1 12. Don't go swimming anymore
1 14. Avoid weekends; Less use on weekends

Avoid Busy Days/Times/Areas

1 65. Avoid crowded areas

Question 16: Are there changes you would like to see on Pools 7 and 8?

- 16/104 (15 percent) mentioned changes they would like to see occur.
- 19 responses given

Improvements/Maintenance to Sandbars and Beaches

3 23. More sandbars/islands; dredge to create more sandbars
1 198. More island preservation

Changes in Policies on Commercial Traffic/Lockages

1 77. No commercial traffic on weekends
2 192. Locking lanes for recreational boaters

- | | | |
|---|------|--|
| 2 | 207. | Locking schedules |
| 1 | 210. | Locks transmit over ch. 14 for tow boat locking status |

Changes in Patrol/Enforcement of Boating Regulations and Etiquette

- | | | |
|---|------|---|
| 1 | 203. | More enforcement of courtesy and safety regulations/
no-wake zones; More control of pleasure boaters |
|---|------|---|

Limit/Zone/Disperse/Restrict Use

- | | | |
|---|------|--------------------|
| 1 | 147. | More no-wake zones |
|---|------|--------------------|

More Dredging; Control of Siltation and Erosion

- | | | |
|---|-----|---|
| 1 | 43. | Dredge siltation in backwaters for better access; dredge
backwaters; make sloughs deeper |
|---|-----|---|

Improvements/Additions to Shore Facilities

- | | | |
|---|------|---|
| 1 | 8. | Add a dock; More places to tie up boats |
| 2 | 193. | More Marinas |

Other

- | | | |
|---|------|--|
| 1 | 18. | Less fluctuation of water levels |
| 1 | 128. | Mark submerged obstructions or remove them |
| 1 | 211. | More clean up along river/shoreline |

Question 19a: Did you have any problems or conflicts with other visitors while on Pools 7 and 8?

- 11/104 (11 percent) mentioned a problem or conflict with another boater.
- 13 responses were given.

Discourteous Behavior

- | | | |
|---|-----|------------------------|
| 1 | 3. | Inappropriate behavior |
| 1 | 25. | Noisy boats |

Unsafe Boating/Ignoring Boating Rules

- | | | |
|---|-----|---|
| 1 | 7. | Bass boats/other boats came by too close and too fast |
| 2 | 19. | General ignorance of boating "Rules of the Road" |
| 3 | 30. | Most people enter locks very courteously, then run
over each other when leaving; Boaters discourteous
entering and leaving locks; Boaters not leaving locks in
single file - too big a hurry |

- 2 33. People don't know the rules of lockage

Personal Watercraft Problems

- 1 9. Jet skis (problem not specified); Jet ski crossed dangerously crossed in front of our boats

Other Problems

- 2 27. Crowded sand bars

Question 19b: Did you have any problems with towboats while on Pools 7 and 8?

- 5/104 (5 percent) mentioned problems with tows,
- 5 responses were given

Lock Usage/Conflicts

- 3 5. Waiting/takes too long to lock; had to wait 2 1/2 hours; Lock travel is slow

Tows Cause Large Wakes/Other Safety Concerns

- 1 19. Too big - safety hazard for small boats

Other Complaints

- 1 15. Too many at times / weekends

Question 19c: Did you see or experience any accidents or safety hazards while on Pools 7 and 8?

- 13/104 (13 percent) mentioned an accident or safety hazard.
- 13 responses were given.

Unsafe Boating (Threatened respondents' or other boaters' safety)

- 1 6. Drunks; Drinking on boats
- 3 18. Jet skiers too close to boat / in general
- 1 19. Large wake from a big boat came over gunwale
- 1 24. Saw a boat too close to barges; Small craft pulled into lock in wake of departing tow - he got tossed around pretty good
- 2 36. Large boat passing too close with large wake
- 1 37. Water skiing without an observer
- 1 41. Boaters do not know safe boating rules

- | | | |
|---|-----|---|
| 1 | 42. | Jet Skiers are a safety hazard |
| 1 | 58. | Pleasure boat sat in front of lock as tow was leaving |

Physical Hazards

- | | | |
|---|-----|----------------------------|
| 1 | 51. | Floating branches / debris |
|---|-----|----------------------------|

Question 19d: Did you have any other problems during your last time out on Pools 7 and 8?

none

Appendix J
Mapped Spatial Data on Boater Activities and
Preferences from Exit Interviews of Ramp Users

The maps contained in this Appendix are compilations of information marked on field-use maps during the 335 exit interviews conducted at launch ramps for this study. As detailed in Appendix A, four types of information were marked on 20 in. X 25 in. maps of the study area during the course of each interview:

- 1) Location where the respondent participated in the activities listed on the questionnaire (cruising, fishing, water skiing, beach use, and "other" activities).
- 2) The respondents' favorite places, if any, on Pools 7 and 8.
- 3) Locations the respondent avoids, if any, on Pools 7 and 8.
- 4) Locations of conflicts respondent has experienced with other boaters on Pools 7 and 8.

The data on the field maps was digitized by US Park Service Personnel at the Mississippi National River and Recreation Area office in St. Paul, Minnesota, under the direction of Mr. Mark Dalton, using GRASS. The digitized data was then converted for use in ARC-INFO and the product maps produced by Ms. Lynne Arndt at the Environmental Management Technical Center (EMTC) in Onalaska, Wisconsin.

Maps of Ramp Users' Activities on Pools 7 and 8

Cruising Activity Map

In most cases, the general route followed by the 44% of ramp users who spent time cruising was marked on the maps using a line starting at the launch ramp and extending to the furthest point the boater cruised from that ramp. In many cases, boaters followed approximately the same route going away from and returning to the put-in site. Where appropriate, "side trips" into side channels or backwater areas were indicated as divergent loops from the route line. In some cases, a loop beginning and ending at the ramp best represented the route travelled. The route lines were generally not drawn to such an accuracy that the exact track of the boat on one side or the other of the main channel or at exact spots in side channels and backwater would be implied. Such accuracy would not be possible within the constraints of the survey methods used, nor was such accuracy considered necessary.

The "Cruising Activity" compilation map is characterized by many overlapping route lines, shown in blue on the map. In areas receiving the greatest amount of cruising boat traffic originating at the ramps, the lines converge into one thick line. This thick blue line is apparent on the map the entire length of the main channel between Lock and Dam 7 to the north and the Brownsville area to the south. It also extends the entire length of the Black River at LaCrosse, from the junction with the Mississippi upstream to the Onalaska spillway.

In areas with somewhat less cruising traffic originating at public launch ramps, the blue line is less thick or appears as a number of closely intertwined but separate lines on the map. This condition is seen on the map the entire length of the main channel on Pool 7 and, on the main channel within Pool 8, from Brownsville downriver to Lock and Dam 8 at Genoa.

Several cruising route lines also appear in the most accessible side channels such as the East Channel and French Slough running west of French Island and the West Channel running to the west of Pettibone Island. The map data also indicates the presence of the occasional boaters who cruise the extensive braided backwater surrounding Goose Island and who cruise across the Lake Onalaska backwater.

It should be made clear that the interviews documented that many fishermen "cruise" in backwater and side channel areas going to and from their fishing spots. However, this "to and from" activity was considered part of the fishing activity during the interviews and so these routes are not part of the "cruising" data mapped here.

Fishing Activity Map

Fishing activity, participated in by 56% of ramp users, was marked on the maps during interviews in two ways. In most cases, boaters who spent time fishing indicated specific spots where they had been fishing that day and those locations were marked with an "X" on the maps. Other fishermen indicated a general route they had followed while fishing, stating that they had fished at many spots along that route that day. In some instances these fishermen had trolled (fished while underway). These types of fishing activity were marked with route lines or loops, similar to the way cruising activity was marked.

The compilation maps displays the specific fishing spots as red triangles. The locations are well dispersed throughout Pools 7 and 8 with few areas going unused. The majority of the markings are within backwater areas. Concentrations of backwater fishing activity are apparent in three areas: 1) on the east side of Lake Onalaska near Rosebud Island and at the north end of French Island, 2) on the upstream portion of the Black River, and 3) in Bluff slough and other backwaters north of Goose Island. The broad areas of open water on Lake Onalaska and at the downstream end of Pool 8 appear to receive little fishing activity from these boaters.

Relatively few fishing locations appear on the main channel on the compilation map, especially on Pool 7. The exception is a concentration of use immediately downstream of L/D #7, where fisherman are attracted by the fast tailwaters coming over the dam. Most other main channel fishing locations are near islands or entrances to side channels, where fishing is presumably best.

The fishing routes represented by the blue lines, primarily on Pool 8, extend up the Black River, on the main channel between the I-90 bridge and Coney Island, and into the

East Channel and French Slough west of French Island. Many of the main channel routes appear to reach into backwaters like Bluff Slough and Target Lake. A group of route lines originating at ramps at the north end of French Island generally loop around Rosebud Island.

Water Skiing Activity Map

Only 12% of the ramp users interviewed said they had spent time water skiing that day. Those boaters' water skiing routes, indicated on the compilation map with blue lines, extend the length of both Pools, from Trempealeau all the way downriver to Stoddard. However, the map clearly indicates this activity is concentrated on the Black River between the Clinton Street bridge and the Onalaska spillway. A few boaters indicated they water skied near Green Island and in Bluff slough, and a few others skied on portions of the main channel and Lake Onalaska.

Beach Use Map

About one-third of the ramp users said they spent time at beach sites. Most of this activity, indicated on the compilation map with red triangles, occurred on Pool 8. The triangles are scattered at numerous points along the main and side channels, with the greatest concentration at the large islands near Brownsville created from dredged material. The map also indicates that ramp users found other small beach sites in the backwaters north and west of Goose Island and they also use the public beach at the upper end of the Black River.

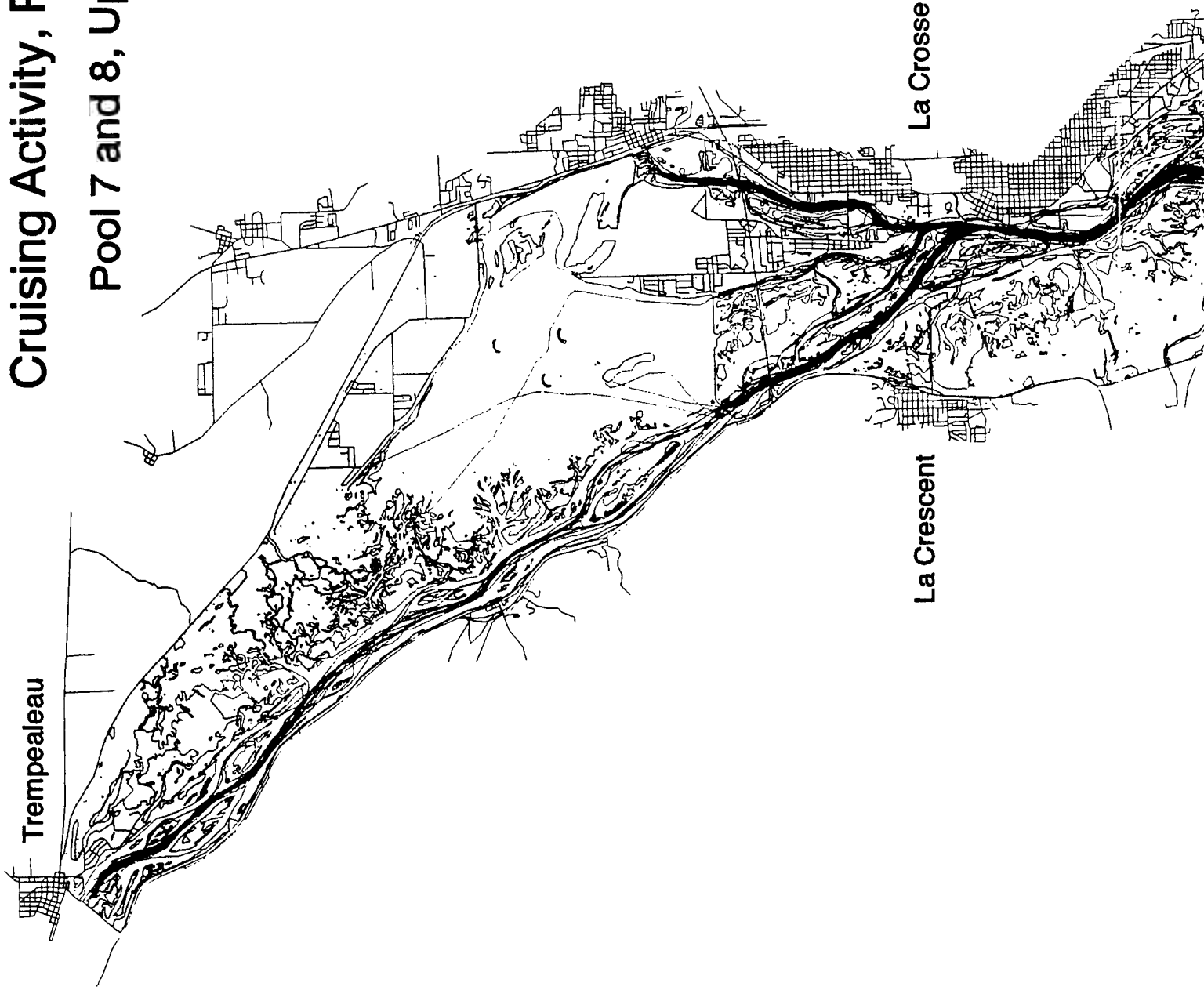
Other Activities

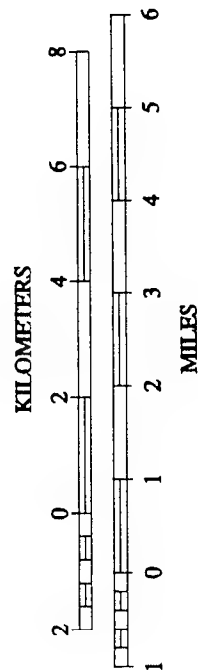
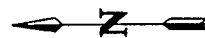
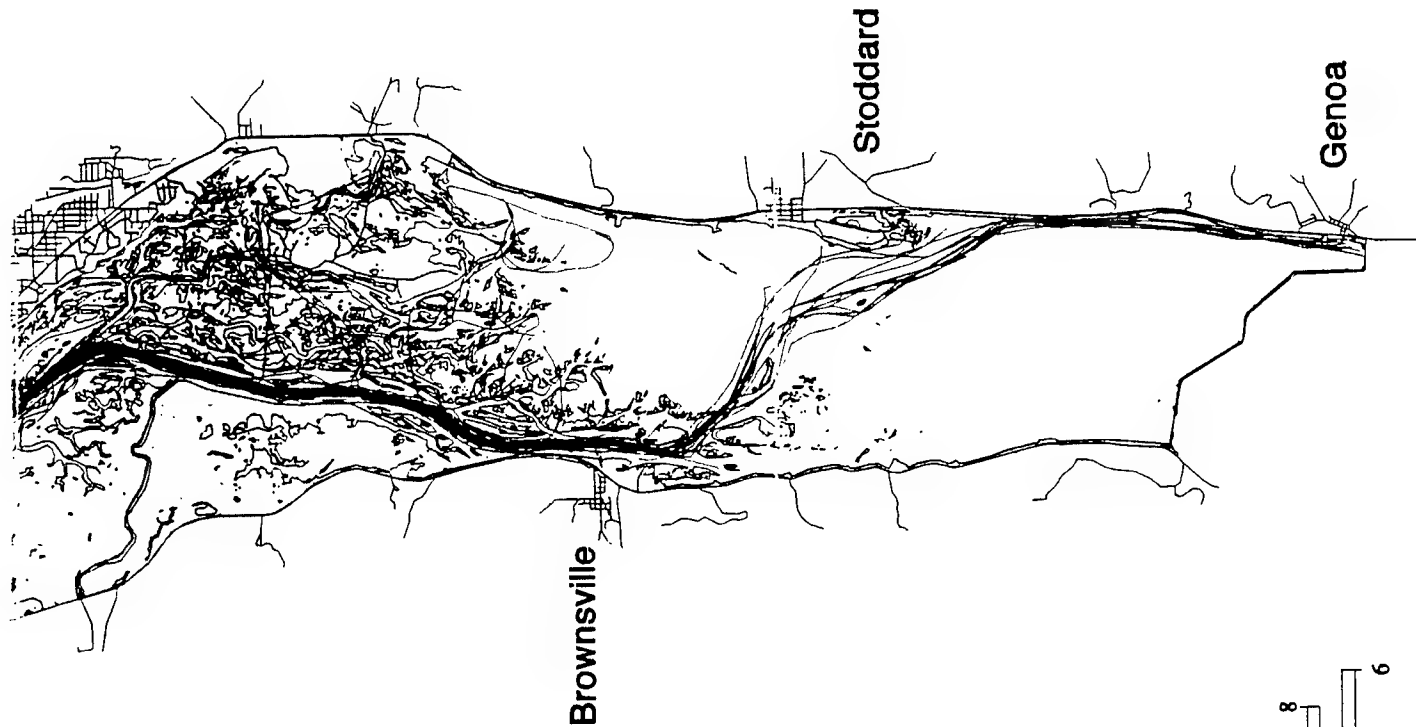
Because only 8% of ramp users mentioned an "other" activity (e.g., clamming, commercial fishing, visiting marinas and water-side restaurants) and so few of these activities were mapped, a compilation map was not produced.

Cruising Activity, Public Ramp Users

Pool 7 and 8, Upper Mississippi River

Summer 1994

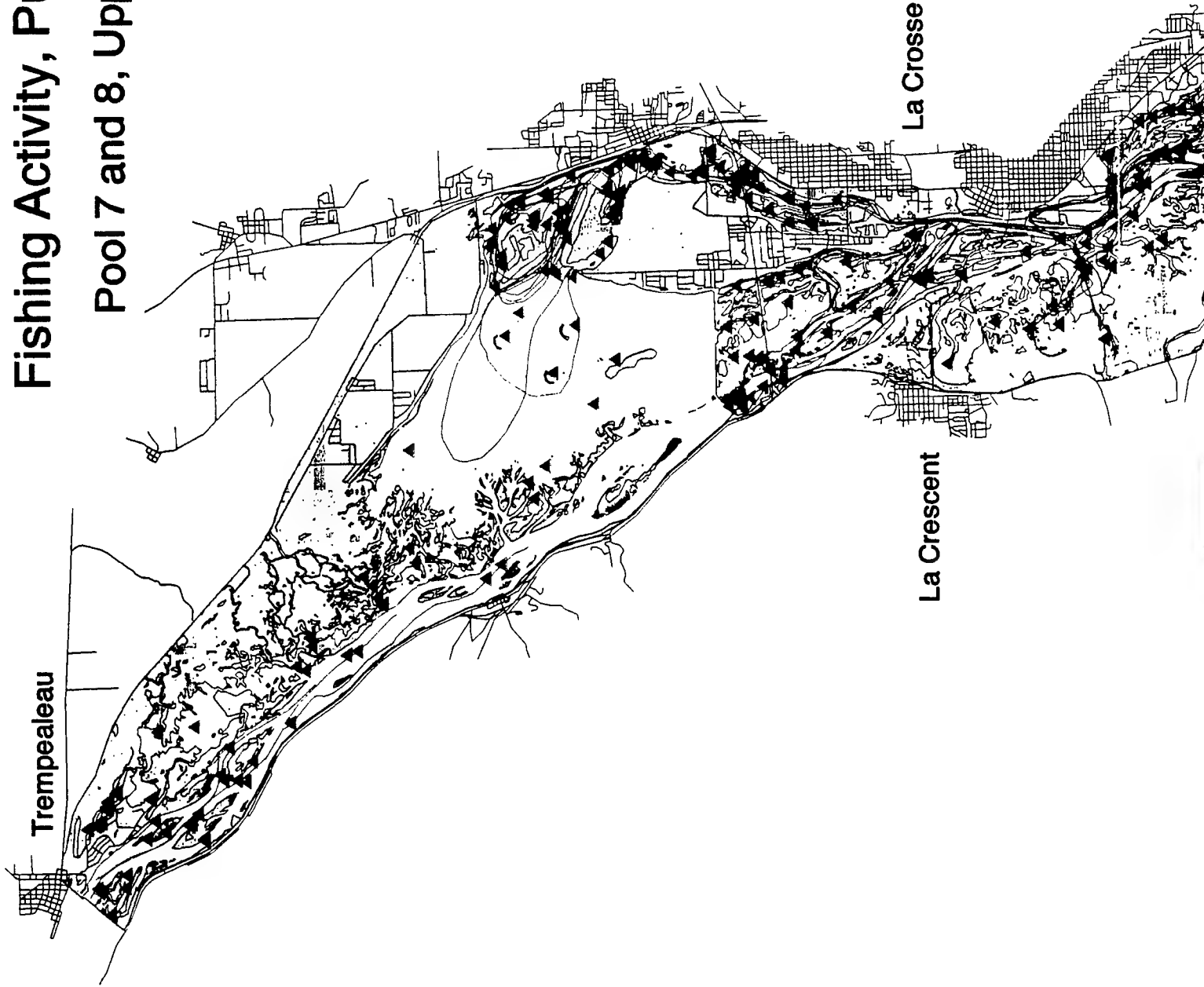


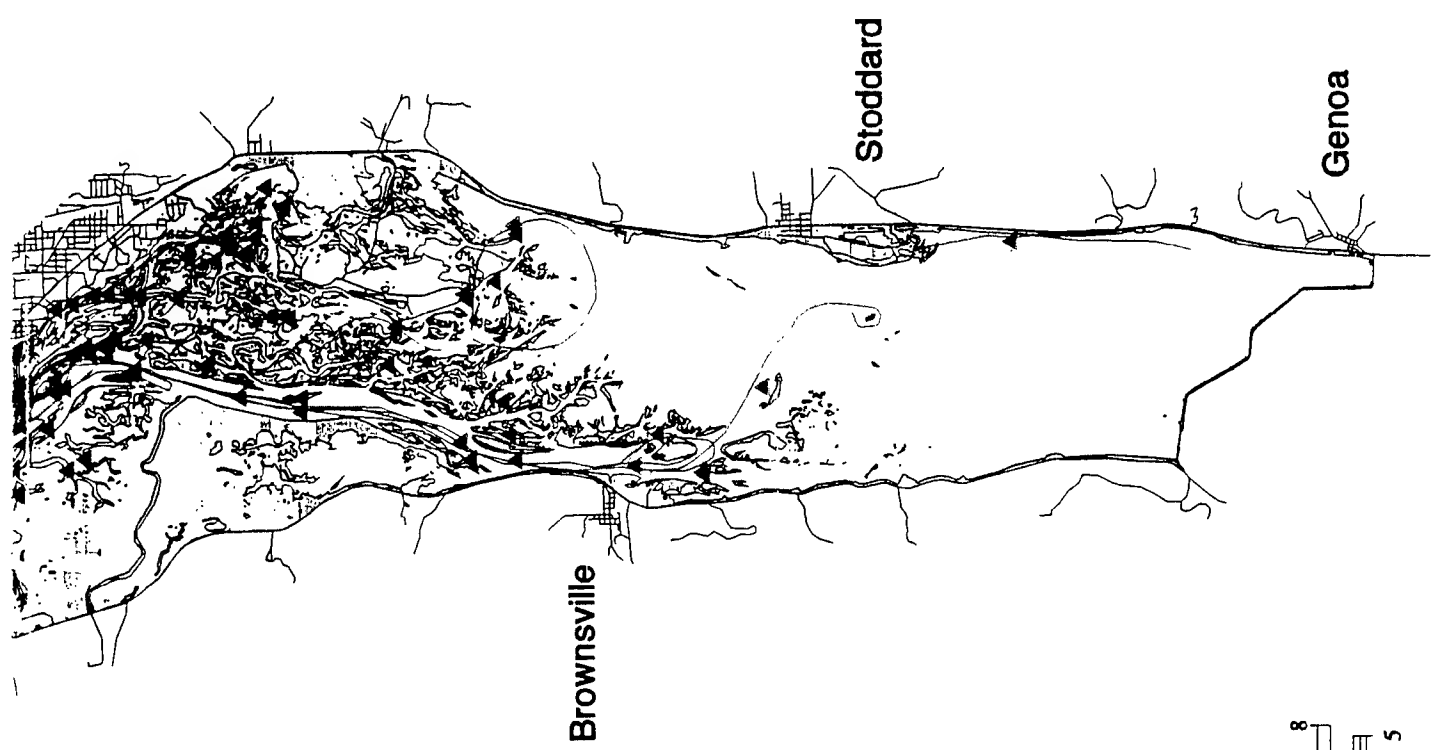


Fishing Activity, Public Ramp Users

Pool 7 and 8, Upper Mississippi River

Summer 1994

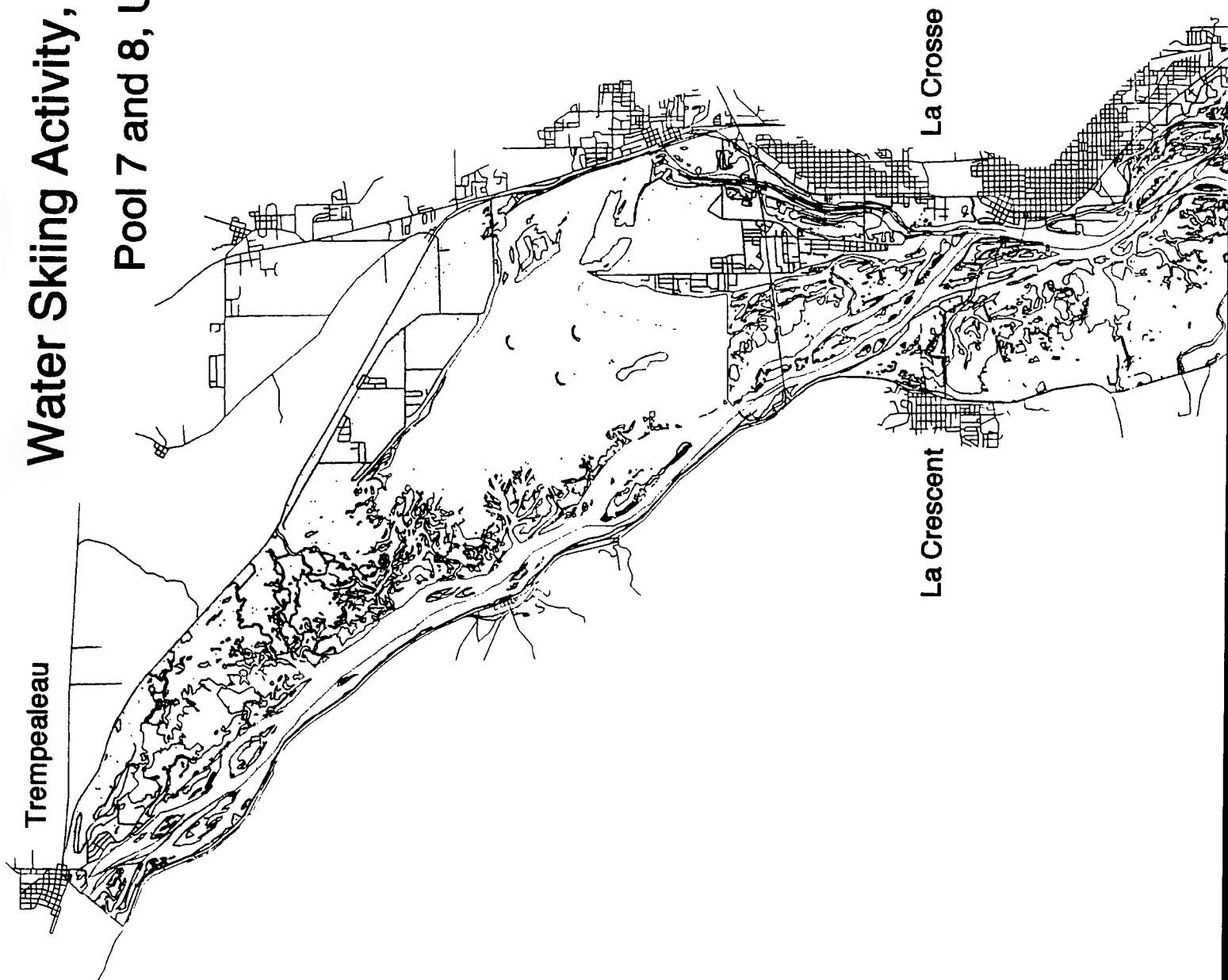


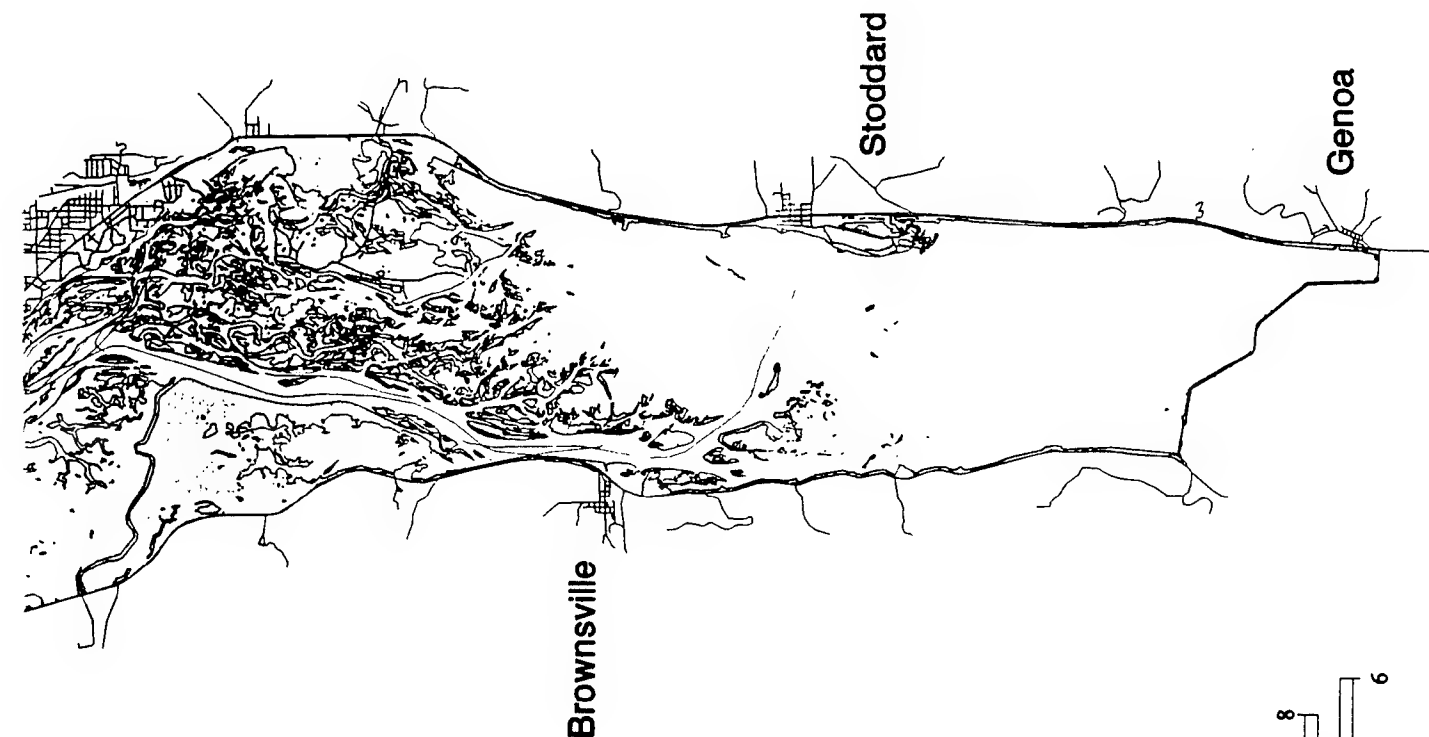


Water Skiing Activity, Public Ramp Users

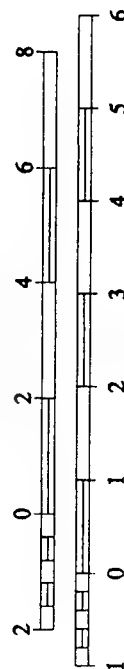
Pool 7 and 8, Upper Mississippi River

Summer 1994





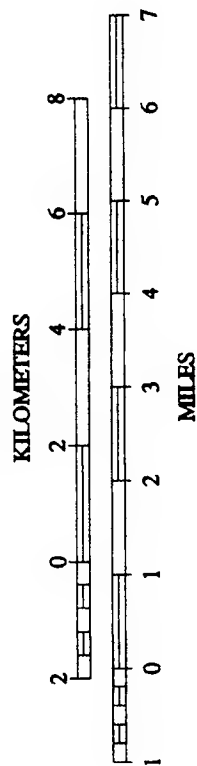
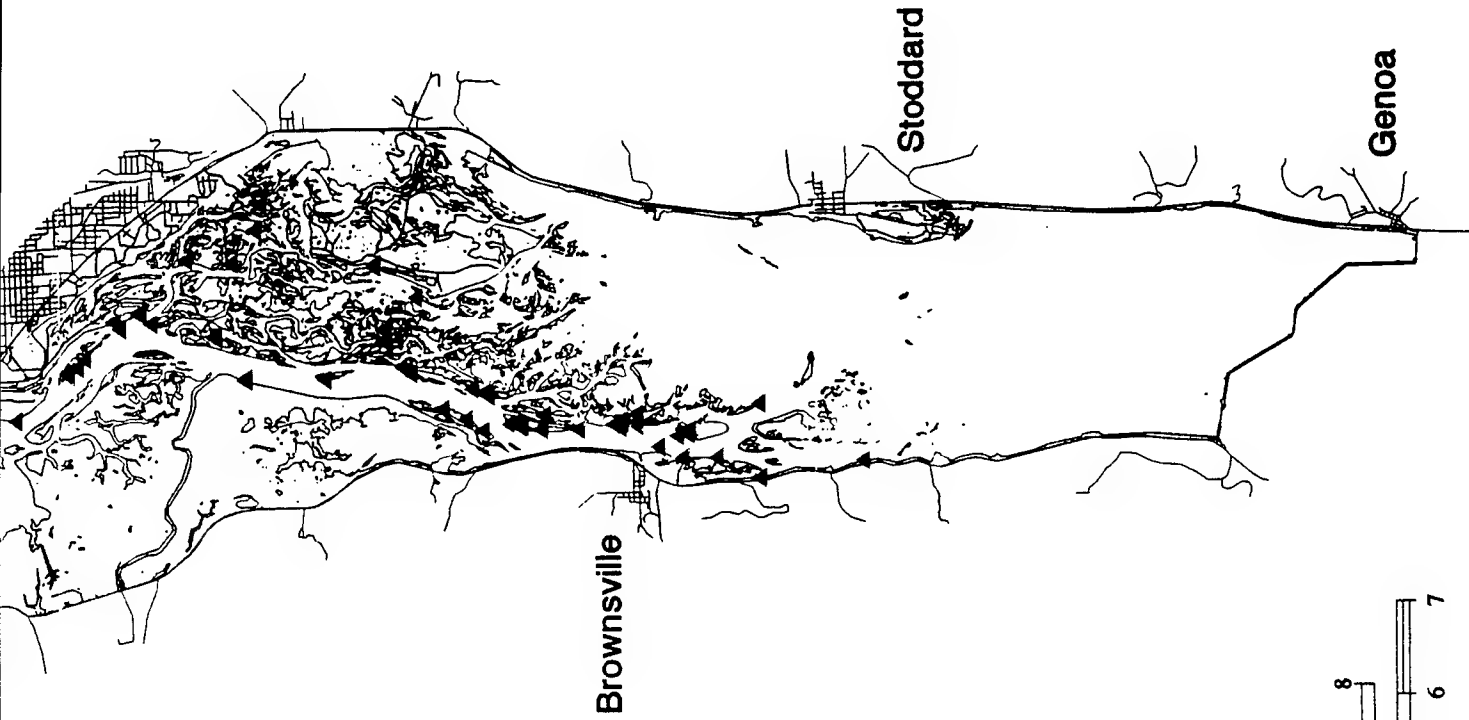
KILOMETERS



MILES

Beach Use, Public Ramp Users Pool 7 and 8, Upper Mississippi River Summer 1994





Maps of Boaters Favorite, Avoided, and Problem Locations

Favorite Locations Map

About two-thirds of the ramp users mentioned at least one favorite location on Pools 7 and 8. Most were able to point out specific locations and these are depicted on the compilation map by red triangles. The majority of those favorite location are on Pool 8, primarily in side channels, the Black River, and back waters. Bluff slough and nearby backwaters north of Goose Island appear to be especially favored backwater areas. With the exception of the area around the popular dredge disposal beaches and islands near Brownsville, relatively few favorite spots appear in or along the main channel.

On Pool 7, the favorite locations are concentrated on the first few upstream miles, especially around the islands and beach sites in the area, and in the Trempealeau Lakes. A few other indicated favorite spots at the west side of Lake Onalaska near Gibbs and Sumners Chutes. A handful (primarily sail boaters) favor the open waters of Lake Onalaska while several fishermen pointed out spots around Rosebud Island.

Some ramp users did not point out specific favorite locations but instead indicated favorite areas. These are shown on the compilation map as blue circular shapes. The circles often cross both land and water but serve to delineate favorite areas that are a few miles in length or across. Several of these circles enclose the entire Black River near LaCrosse, while most others circle various portions of the backwaters to the north and west and including Goose Island. In this regard, these marks add to the concentration of specific favorite locations in those areas.

Avoided Locations Map

Nearly one-half of the ramp users interviewed said they avoid at least one place or area on Pools 7 and 8. Unlike the boaters' favorite locations, these are concentrated in just a few areas and the majority of the marks fall on the main channel between L/D #7 and Coney Island. Once again, boaters pointed out both specific locations (shown on the map with red triangles) and more generalized areas (shown with blue circles). The map clearly shows that the greatest concentration of avoided locations is on the main channel near downtown LaCrosse. Some specified locations on the Black River they avoid. Others avoid busy or hazardous parts of the main channel at near Coney Island and at the mouth of the West Channel.

Only a scattering of avoided locations or areas appear on the main channel of Pool 7 or the main channel of Pool 8 downstream of Coney Island. These areas may be to lightly trafficked to cause most boaters to avoid them (heavy boat traffic and wakes were the primary reason boaters avoided the LaCrosse area). A few avoided location marks appear within Lake

Onalaska; these are mostly the indications of boaters who avoid the entire area due to shallow water and stumps. Similar marks appear in the open area at the downstream end of Pool 8.

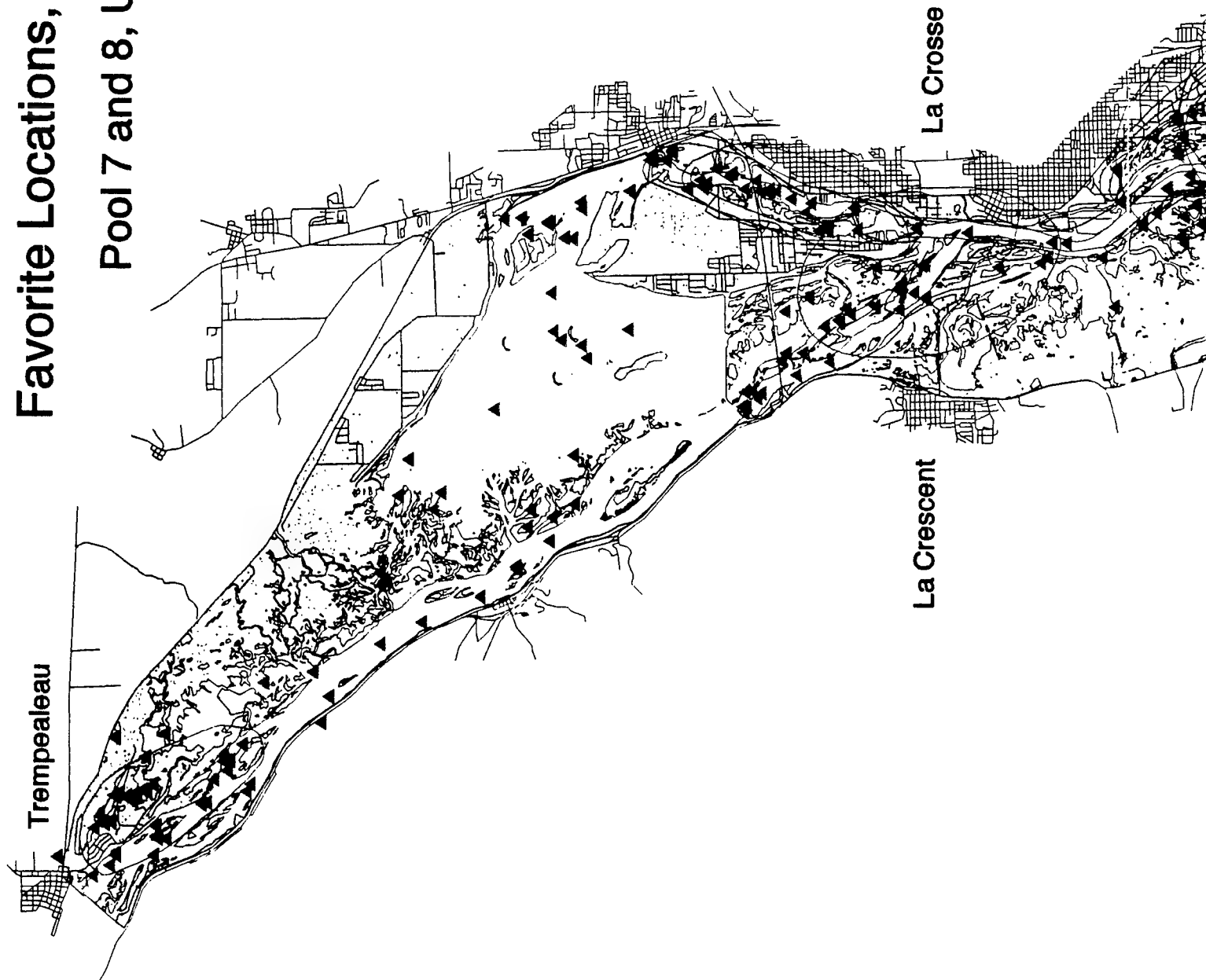
Problems/Conflicts Map

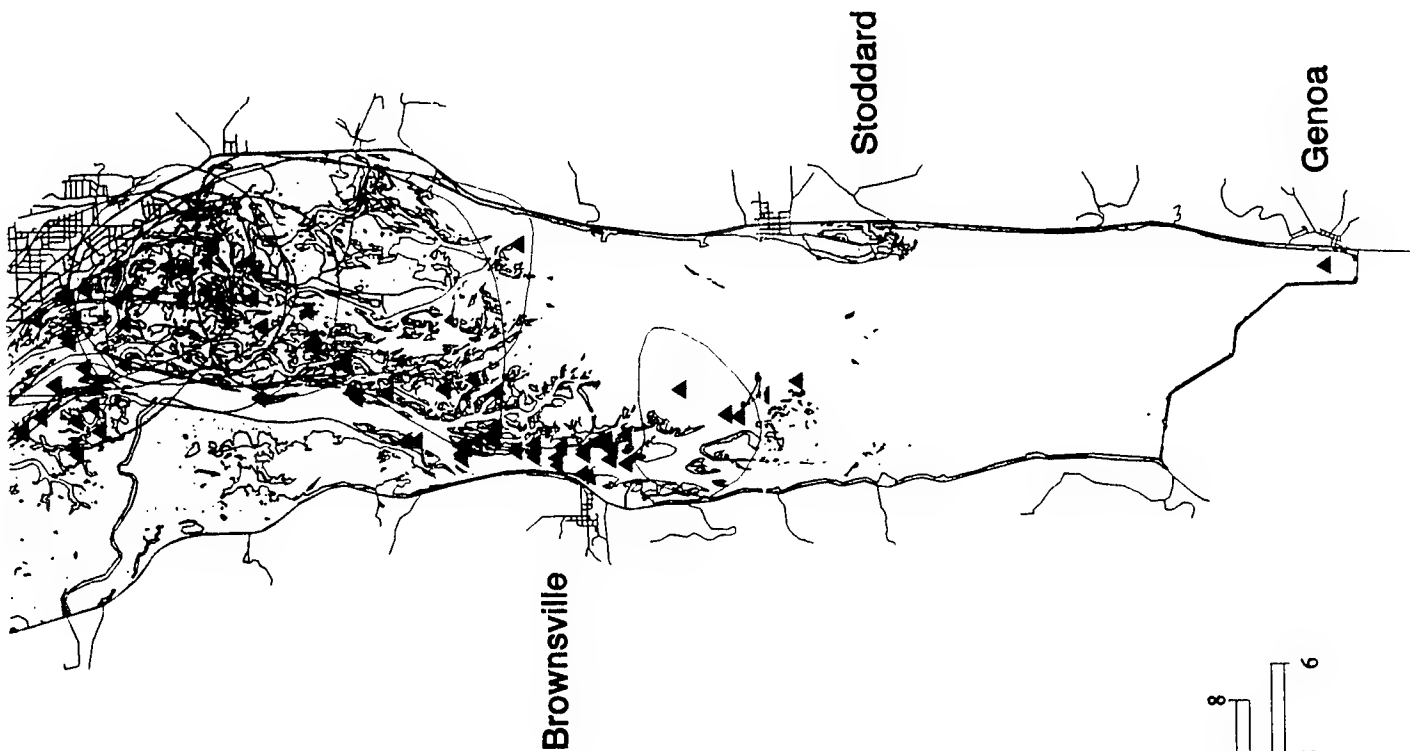
Only 15 of the 335 (4%) ramp users interviewed mentioned any specific problems or conflicts with other visitors that occurred that day. No pattern emerges in the few problem/conflict locations that were mapped, although they generally appear in higher traffic areas (south Black River, at the upstream end of Pool 7, near Brownsville).

Favorite Locations, Public Ramp Users

Pool 7 and 8, Upper Mississippi River

Summer 1994

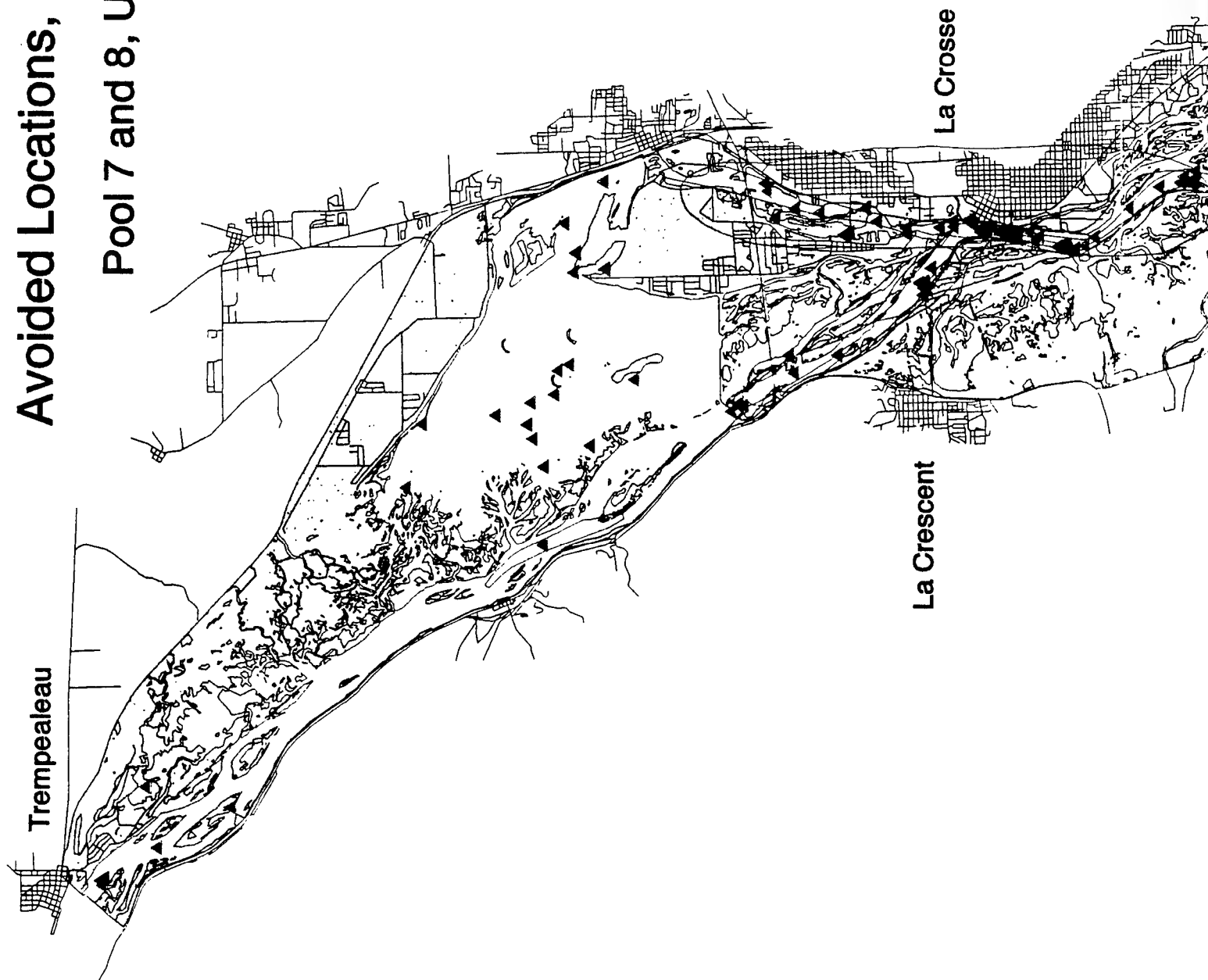


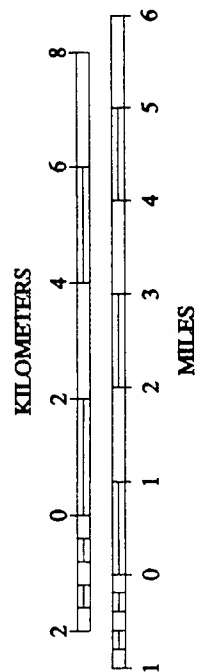
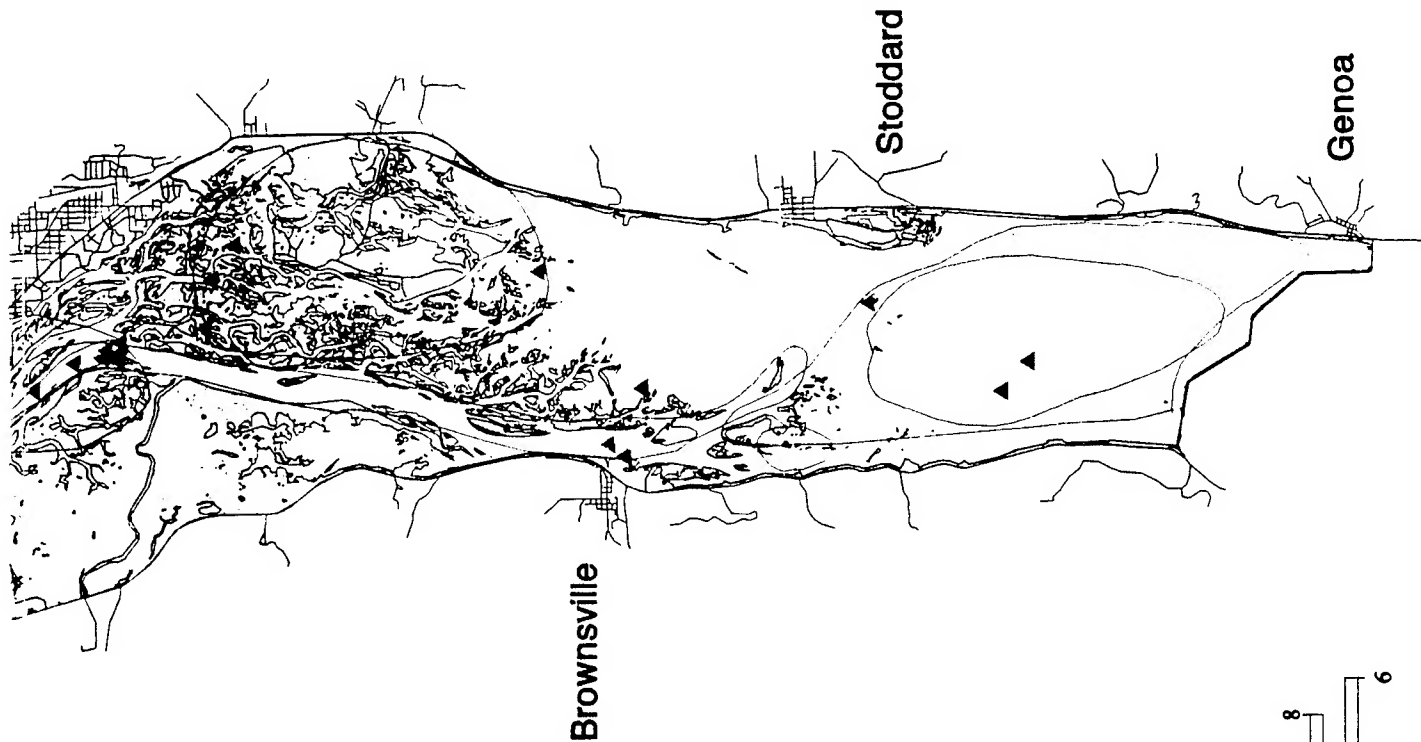


Avoided Locations, Public Ramp Users

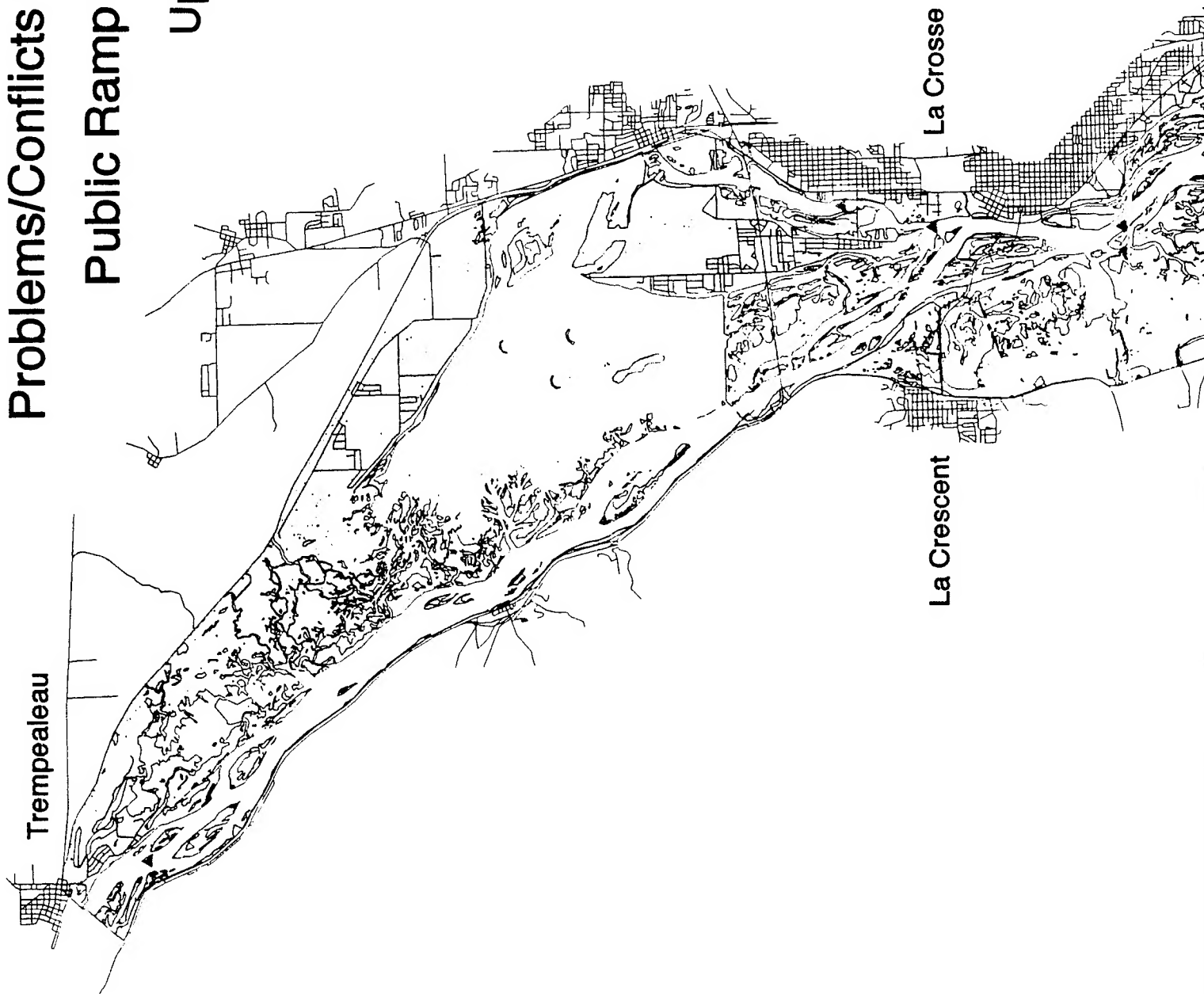
Pool 7 and 8, Upper Mississippi River

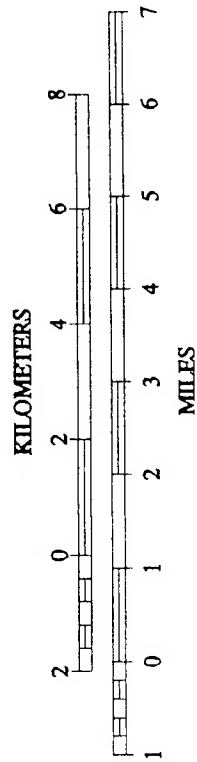
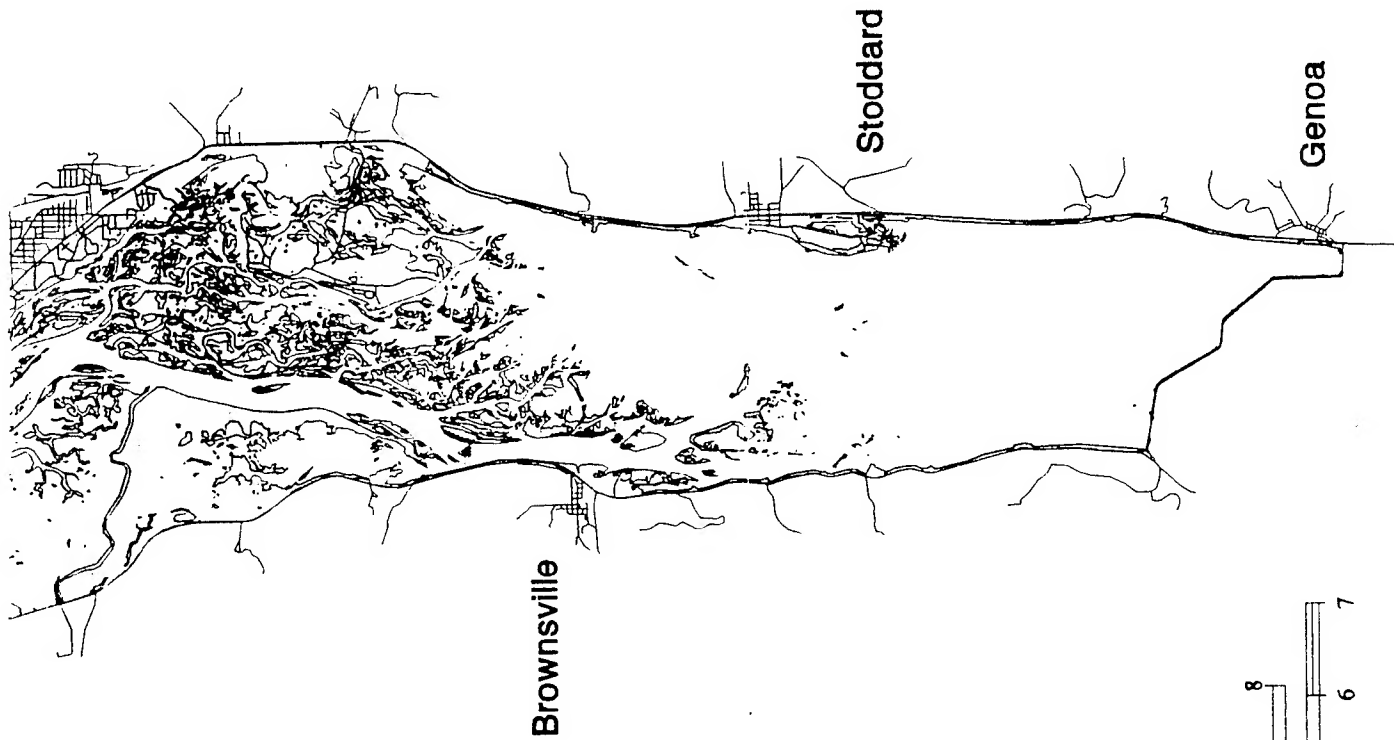
Summer 1994





**Problems/Conflicts with other boaters,
Public Ramp Users, Pool 7 and 8
Upper Mississippi River
Summer 1994**





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13. ABSTRACT (Maximum 200 words) This report presents the findings of a pilot carrying-capacity study conducted on Pools 7 and 8 of the Upper Mississippi River. The purpose of the study was to determine boaters' perceptions and preferences regarding resource, social, and managerial conditions on that portion of the river and to measure and document current levels and patterns of boating activity on the two pools. The pilot test objective was to develop management information-gathering procedures that could be applied systematically to each of the pools in the Upper Mississippi River system. A total of 335 boaters were interviewed at public launch sites, and 560 boaters who use private means of access or who enter through the locks returned mailed questionnaires. Boat locations were mapped and counts derived from 12 overflights of the study area. The survey results provided substantial information about the origin and use patterns of the boater groups surveyed. The importance to boaters of specific types of recreation opportunities (e.g., good fishing, relative quiet, and solitude) are highlighted. In addition, boaters' concerns about heavy boat traffic and related social issues, as well as concerns about physical changes to the river (e.g., sedimentation), are detailed. Recommendations for improving boating conditions are given.				
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